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To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interest of Lake Carriers, and improve the character of the service rendered to the public.

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AMERICANIZING FOREIGN VESSELS.

The attempt to evade the law relating to the granting of American registry to a foreign-built vessel is becoming very frequent. The success that certain persons have met with in securing favorable action by Congress upon their application for a register for vessels of foreign build owned by them, has given encouragement to others to make the same effort in their own behalf. It can not be claimed with any pretence of truth that the owners of these vessels have complied with the provisions of the statute governing this matter, their sole dependence being placed upon the ability of the lobbyist to engineer their claim through Congress with as little publicity as possible. There can be therefore, but one inference regarding the methods resorted to in order to place before that body apparently good evidence of their having complied with the law. This last would seem absolutely necessary, as Congress would not be likely to pass upon it favorably without some assurance of this kind.

Why, it may be questioned, was that body asked to pass upon this matter at all, if the cost of repairs to these vessels actually reached the amount required by law? The answer to it may be probably found in the fact that that body has not the time at its disposal to make as thoroughly searching an investigation in respect of it as would be possible were the matter referred to the Commissioner to Navigation, where it properly belongs. For this reason fraudulent representations could undoubtedly be made with little probability of Congress being aware of it.

The provision of the law relating to the granting of American registry to a foreign-built vessel is perfectly clear and explicit. There can be no misunderstanding of its meaning. Certainly it was not intended as a gateway for low cost foreign vessels to enter and compete with the American

vessel in the coastwise trade, to the great disadvantage of the latter. This is the use that has been made of certain foreign vessels that were granted this privilege, and it is full time that a stop should be put to this practice.

Whether it will be within the province of the commission, that will soon meet at Washington, to consider some plan for reviving our shipping trade to take cognizance of this matter, we cannot state, but it would seem to be a matter of justice to American shipping that more stringent measures be adopted by Congress to prevent the foreign-built vessel from obtaining a register under false pretences. A recommendation of this kind to that body by this commission, would undoubtedly be in accordance with the idea of that body to benefit the shipping of this country.—New York Maritime Register.

VESSELS CLASSED.

The American Shipmasters' Association, of New York, classed this week in the "Record of American and Foreign Shipping" the following named vessels: Ship Barring Bros.; four-masted schooner General E. S. Greeley; three-masted schooners Jacob Reed, James A. Garfield and Rebecca F. Lamdin; bark James Nesmith; barge Pine Forest and British schooner Elva.

SIZE OF OCEAN STEAMERS.

Even more noteworthy than the recent attempts to make the trans-Atlantic journey at high speed is the evident decision of the steamship companies that, other things being equal, it pays to build steamers of enormous size. Excepting the White Star ship Oceanic, which is building, the Kaiser Wilhelm der Grosse is the largest vessel since the Great Eastern. The older vessels, which ranged from 300 to 400 feet in length, are completely outclassed, and it is somewhat amusing now to remember that their builders were criticised at the time for making their boats too large. The vessels have grown steadily with each advance in shipbuilding, until the company which formerly held 560 feet to be the extreme size of its crack boats planned a vessel of 620 feet. The new German ship exceeds this limit, her dimensions being 649 feet over all by 66 feet beam. A good idea of the tendency to build immense vessels may be gained from the following table, in which the largest new steamers of leading lines are compared with the famous Great Eastern:

Names.	Tonnage.	Horse power.	Lgth.	Beam.	Depth
K. W. der G. . . .	14,000	28,000	649	66	40
K. Friedrich, . .	12,500	24,000	599	63.11 1/2	37.9 3/4
Oceanic	17,000	704	70	42
Lucania	12,950	30,000	622	65	43
St. Louis	11,629	20,000	534	63	43
La Touraine. . .	9,778	13,000	520	56	34
F. Bismarck. . .	8,250	16,400	500	57	34
City of Rome. . .	8,144	11,500	560	52	37
Teutonic	9,984	18,500	556	58	39
Great Eastern . .	18,915	8,000	692	82.2	58

And the next marine monster, the Oceanic, when completed, will be 50 feet longer than the Kaiser Wilhelm and twelve feet longer than the Great Eastern. It may well be a matter of wonder where this growth of the ocean leviathan is going to stop. Presumably the limit of size compatible with a maximum speed has nearly been reached. If vessels are to keep increasing in size at the rate of their growth during the last ten years, they must soon become too unwieldy to be handled in the ordinary course of commerce.

After a series of several tests, the Central Laboratory of the French Ministry of Marine have authorized the use in the naval yards of the republic of delta metal for the manufacture of various fittings of high-pressure boilers, such as valves, cocks, gauges, etc. An official order to this effect was issued by the Bureau of Naval Construction of the Ministry on the 23rd of September last.

STEAM TURBINE FOR MARINE PROPULSION.

The earliest notices of heat engines are found in the "Pneumatics" of Hero of Alexandria, which dates from the year 200 B. C. One of the steam or motive power engines there mentioned is the Æolipiles, a steam reaction engine consisting of a spherical boiler pivoted on a central axis; beneath which is placed a flame. The steam escapes by bent pipes facing tangentially in opposite directions, at opposite ends of a diameter perpendicular to the axis. The globe revolves by reaction of the escaping steam, just as a Barker mill is driven by escaping water. No practical or useful steam engine appears to have been made on this or any analogous principle until the year 1884, though many attempts seem to have been made on more or less crude lines; meantime the piston engine of Papin, Savery, Newcomen, and Watts has been developed during the last 200 years, and by its general use has revolutionized the means of transit, and tended to vastly increase the productive power of labor generally.

The advantages claimed for the compound steam turbine over ordinary engines may be summarized as follows:—1, increased speed; 2, increased economy of steam; 3, increased carrying power of vessel; 4, increased facilities for navigating shallow waters; 5, increased stability of vessel; 6, increased safety to machinery for war purposes; 7, reduced weight of machinery; 8, reduced space occupied by machinery; 9, reduced initial cost; 10, reduced cost of attendance on machinery; 11, diminished cost of upkeep of machinery, 12, largely reduced vibration, and 13, reduced size and weight of screw propellers and shafting. For the purpose of going astern a small reverse turbine is used. This turbine has hitherto been of an inefficient form. The speed reached during the trial of the Turbinia was 32.76 knots in the mean, the highest recorded for any vessel. It is greatly in excess of the speed hitherto reached in boats so small as the Turbinia. The exceptional speed developed in the Turbinia has been achieved without sacrifice of any economy, and the substitution of turbines driving high-speed screws, in place of reciprocating engines driving screws of much more moderate speed, is not attended with increased consumption of steam, so far as fast running is concerned.

ADVANTAGES OF HYDRAULIC RIVETING.

The first important point to be attended to when riveting is to see that the holes are properly punched or drilled, and the rivets of a size to fit the holes. In boiler work the drift pin is too frequently used to bring the holes fair with each other, to the discouragement of all good work. The next thing is to see that the rivets are long enough. Good work cannot be done if the rivets are not of sufficient length to allow a proper head to be turned up. Also, the rivets must fit the holes. With a rivet too small to properly fit the rivet hole, good work is an impossibility. The plates must further be held closely and firmly together when driving the rivets. It is one of the strong points of hydraulic riveting that the plates are forced together and held there while the riveting is being done; and in hydraulic and other power riveting it is of vital importance that the rivets be of sufficient length. If a trifle too short when hand riveting is done, the rivets can be coaxed into shape after a fashion; but with the machine riveter there is no chance of doing even a half decent job unless there is stock enough in the rivet to fill the machine set. The test of sufficient rivet length is to have a slight fin or rim of metal crowd out the ball around the heading tool. The fin need not be very wide—it should not even require removing—but it should be there and of even width all around the outside of the heading tool. In hand riveting the best work is done when a rivet is driven here and there, bolts being used in the other holes to clamp the plates together while the intermediate holes are being riveted.

NEWS AROUND THE LAKES.

CHICAGO.

Special Correspondence to The Marine Record.

At the Chicago Ship Building Co.'s shipyard the steamer Monteaule was in dock for considerable new bottom plank and calking; the steamers A. P. Wright and Arizona and barge Maude received some repairs.

At the shipyard here the steamer Fayette was in dock for some new bottom plank and calking; the tug William McCarthy for re-ironing, repairs to rudder and a new wheel; the steamer A. P. Wright for a new blade on her wheel.

The following vessels have been stripped and laid up here for this season: Schooners Winnie Wing, Lotus, Sophia J. Huff, and Libbie Nau; barges Wayne, Iron City, Iron State, S. M. Stephenson, Fanny Neil and Miztec, and steamer Toltec.

Grain freights advanced to 1½ cents on corn on Tuesday.

H. W. Cook & Co. chartered the steamer Katahdin for corn to Buffalo at 1½ cents; the steamer New Orleans for oats to Buffalo at 1¼ cents; the steamers John Otis and I. N. Foster and schooners Elgin and Evaline for lumber from Menominee to Chicago at \$1.25 per M feet.

The steel steamer Katahdin, which arrived here Saturday night with 1,350,000 feet of lumber from Grand Marais, backed into the jib stays of the schooner Libbie Nau laying on the lumber market and broke off her jibboom about ten feet from the end.

William Saville, a ship joiner and marine insurance adjuster, returned from Duluth Saturday night where he had made a survey of the tug Commodore Jack Barry, which recently burned and sank at Barry Bros.'s dock. She was insured for \$4,000, and is a total loss.

The steamer Madagascar, Capt. John Jenks and consorts S. M. Stephenson, Capt. John Cowans, and Fanny Neil, Capt. Chas. Moore, have had a very successful season so far and have got far ahead of all records of any fleet running out of this port. The steamer and consorts have made 13 round trips between Chicago and Washburn for lumber, one trip to Owen Sound with grain and two trips to Buffalo with grain. They have brought about 31,000,000 feet of lumber to this port and South Chicago. The Stephenson and Neil will go into winter quarters as soon as unloaded and Capt. Jenks expects to make another trip from here to Buffalo with grain and return with a cargo of coal before going into winter quarters.

The old steamer New Era arrived here Monday night from Milwaukee in tow of the Dunham Towing and Wrecking Co.'s tug Protection. The New Era has been purchased by John E. Murphy, of Chicago, who intends to have her rebuilt and fitted out for the excursion business next season. The New Era was built about 30 years ago at Grand Haven for Salen Eastman and was afterwards owned by Capt. Thos. Kirby and John Furlong and was used for many years towing barges from Grand Haven to Chicago with lumber. When the steamer H. S. Pickands was built in 1884 at Grand Haven the engines of the New Era were taken out and placed in the Pickands and the engines of the old steamer Trader were placed on the New Era. The New Era was condemned by the inspectors at Milwaukee four years ago and has been lying sunk in Milwaukee river for some time.

The stocks of grain in Chicago elevators on last Saturday evening were 4,488,000 bushels of wheat, 19,786,000 bushels of corn, 1,455,000 bushels of oats, 729,000 bushels of rye, and 494,000 bushels of barley. Total, 26,951,000 bushels of all kinds of grain, against 25,518,000 bushels a year ago. For the same date the secretary of the Chicago Board of Trade states the visible supply of grain in the United States and Canada are 31,973,000 bushels of wheat, 43,439,000 bushels of corn, 14,285,000 bushels of oats, 3,797,000 bushels of rye, and 4,324,000 bushels of barley. These figures are larger than the corresponding ones of a week ago by 2,927,500 bushels in wheat, and smaller by 1,664,000 bushels in corn, and 1,104,000 bushels in oats. The visible supply of wheat for the corresponding week of a year ago increased 1,043,000 bushels.

BUFFALO.

Special Correspondence to The Marine Record:

The Buffalo correspondent of the Black Diamond says that the shipments of coal westward by lake from Buffalo from October 31st to Nov. 6th, both days inclusive, aggregated 101,920 net tons, distributed as follows: 40,650 tons to Chicago, 26,401 tons to Milwaukee, 11,950 tons to Duluth, 3,130 tons to Toledo, 12,500 tons to Superior, 600 tons to Racine, 2,050 tons to Gladstone, 800 tons to Green Bay, 2,200 tons to Manitowoc, 400 tons to Sault Ste. Marie, 639 tons to Port Stanley and 600 tons to Windsor. The rates of freight advanced; shipments were made at the following rates: 50c. to Chicago, Milwaukee, Manitowoc, Sault Ste. Marie, Port Stanley, Green Bay and Racine; 30c. to Duluth, Superior, Gladstone and Windsor, and 25c. to Toledo and Detroit. Closing firm.

Lake freights have advanced the past week from 40 to 50c. to Lake Michigan ports, 25 to 30c. to Lake Superior ports, and in proportion to other lake cities.

Contracts have been entered into for the construction of eighteen new vessels, eleven steam and seven sail, at a cost of \$3,187,600 by shipbuilders at Buffalo, Cleveland, Detroit, Bay City and other points.

Ensign Jewett, U. S. Navy, has taken charge of the new hydrographic office opened here in the Guaranty Building. Next spring everything will be in readiness for the work of the department, and then we will know all about the hydrography of this part of the lake, a problem hitherto unsolved.

The Buffalo breakwater builders are completing the work outlined for this year. They will complete the superstructure of the 400-foot or so of crib construction at the south end and finish fifty feet of the 3,000 feet of rubble mound construction at the north end. This latter work is called giant paving, it being merely the putting into position of heavy stones that are expected to remain by their own weight, as no cement will be used. The mound, which is about 100 feet wide at the base, narrows into about sixteen feet at the top of the water. The big clam-shell dredge is to be ready for business about the middle of the month. It will be used as long as the weather permits.

Vessel men are of the opinion that the season of navigation will close early this year. "Ore is about all carried," said Capt. John Mitchell, of Cleveland, "and after that shuts down it will take but a short time to pick up what coal and grain there is to be moved. The situation is not what it used to be; a few cargoes like the 205,000 bushels of wheat bound to Buffalo on the Amazon and the remnants will all be taken. Naturally there are still four weeks of sailing yet, and it may all be taken this year, but it does not look that way now."

Mrs. Donald Gillies of this port has made the announcement that she will pay a reward of \$50 to the person who will recover the body of Capt. Gillies, master of the Idaho, which foundered off Long Point. Capt. Gillies was lost with the steamer Idaho last week.

Patrick Maloney, a fireman on the steamer Mohawk, lying in Coatsworth slip, fell overboard and was drowned at an early hour on Tuesday morning. The patrol boat recovered Maloney's body. He was recognized as a fireman who shipped on the steamer Idaho that was wrecked off Long Point a few days ago. Maloney was left behind when the Idaho left this port, and a few days later he shipped on the Mohawk. The dead man was about 35 years old, and boarded at 266 Ohio street. He has two brothers living in New York City, on Sixteenth street near Tenth avenue, and they will be notified of his death. The coroner's office was notified as soon as the body was recovered, and the remains were taken to the morgue. It is thought that Maloney slipped from a ladder on the boat.

Great activity is being shown these days at the Great Northern elevator. There is now over 2,000,000 bushels of grain in store, of various sorts, a large amount of corn being in the list. It is expected that the elevator will close for the season full of grain. The three marine legs are all in use, and have been utilized within a few days to take grain out of two vessels at a time. The report is current here the last few days that the Great Northern management will build another big elevator in New York, and use the canal for the connecting link. While this report is not contradicted nothing definite can be learned on the subject, in fact there appears to be no direct authority for the statement. The present venture is understood to be quite satisfactory and there is little doubt but that if a second building were ready it could be filled, for offerings of grain on storage were declined some time ago. There is no likelihood, however, of a second elevator this season, for there is no time for building it, but there is no saying what may be done next season.

Hand & Johnson's tug Beyers had a narrow escape yesterday afternoon. The Beyers was on her way to the steamer Warde, which was to be towed to the Tift farm. When opposite the Erie coal dock, the wheel picked up a log, the shock of which nearly capsized her and she ran into the North West, moored near by. The result was a badly battered condition and she began to leak rapidly. Water poured into the tug so fast that in a few minutes the fires were put out. Some of the men on the tug tried to climb on board the Warde, but were unable to do so. The tug cut loose from the steamer, and with the small amount of steam she had on, made for shallow water, Capt. Hazen blowing signals of distress. The bridge was opened for her and everything got out of her way, so that the run was an open one, and the tug rushed down the creek, and was beached on the sloping bank at the Navagh boat yard.

The big steamer, Zenith City, is the first vessel to take 5,000 tons of coal from Buffalo to Duluth. She gets 60 cents a ton. The Zenith City's cargo was put on at the piers of the Delaware, Lackawanna & Western railroad, and the coal is to be delivered to the Northwestern Fuel Co., at Duluth. This cargo breaks all records as regards the shipment of coal from Buffalo. The Zenith City is commanded by Captain F. B. Houghton, who was formerly a schooner master, but has developed into quite a smart steamboat man within the last few years, and seems to get over the ground with the best of them.

President William C. Cornwell, of the City bank, gave an informal luncheon on Tuesday at the Iroquois. Among his guests were President James J. Hill, of the Great Northern Railway Co. and the Northern Steamship Co., and Henry W. Cannon, ex-Comptroller of Currency and president of the Chase National Bank, of New York. Mr. Hill discussed the subject of transportation at length. He was well qualified to do so, having studied the subject for years and thereby acquired the fund of inexhaustible knowledge pertaining to the matter. Among other things Mr. Hill said: "We will be interested in the use of the lakes because we can get more out of it always. You can, and the time is not far distant when you will have to take up this question of transportation. You cannot afford to have a carrying trade established which will run around you, above you, under you, or any other way than through you. You will have to make it the business of your community to appoint a body of men to look this up, so that you can get at these matters for yourselves, and do what is best for your interests. It will be worth your while to cut off all dead wood which interferes with your transportation. If they can get rid of it in New York, you can get rid of it here, but it will take a good, strong effort. We have

the greatest patience in the world, and are favorable towards you. We will be glad to help you, and there are others who do not wish to be wiped from the lakes, who feel the same towards you. I know, and I think that every man who understands the question after carefully studying it, will agree with me, that railroad transportation can not force us from the field. At the conclusion of Mr. Hill's address Mayor Jewett and Mayor-elect Diehl spoke a few words of welcome and promise of aid to further any interest which might be promulgated for the interests of Buffalo. Attorney John G. Milburn also spoke briefly and advocated a plan to retain Buffalo's representatives in Congress in office for a long term of years in order that they may acquire power and secure what Buffalo needs and wants through the power which can only be acquired in this way.

The 60 cent rate on anthracite coal has been paid to Duluth this week and there is a probability of it going up another 5 cents, although large carriers have a tendency to keep the figures very low.

The Great Northern elevator is into the grain-handling trade and now has considerably more than 2,000,000 bushels in store of various sorts of grains, a large amount of corn being in the list. It is announced that the elevator will close for the winter full of grain, or very nearly so.

It is stated here this week that figures can show transportation on the lakes at a less cost and consequently much cheaper at the present time than transportation by ocean freight steamers. The average actual freight rates from New York to Liverpool, for nine years past, have been \$1.81 per ton (of 2,000 pounds) or 5.43 cents per bushel of wheat. The average actual grain rate from Chicago to Buffalo, for the past five years, has averaged 1.37 cents per bushel, or \$0.45 per ton. The distance from Chicago to Buffalo is 929 miles. From New York to Liverpool it is 3,500 miles, in round numbers. Thus the rate from New York to Liverpool is equivalent to 0.517 miles per ton mile, and the Chicago-Buffalo rate is equivalent to 0.484 miles per ton mile. But the very lowest cost of lake transportation is not adequately shown even by this, for the distance from New York to Liverpool is more than three times as great as the distance from Chicago to Buffalo, and in all matters of transportation, the longer the haul, the lower the rate which can be made.

Occasionally a lake captain calls at the office of the Supervising Inspector of Steam Vessels for some pointers on the vacancy caused by the death of the late hull inspector, Marion. The place is not easily filled. There was, for instance, a man asking some questions in the inspector's office this week who was 75 years old. The requirement is that the candidate shall be between 25 and 55 years of age, and shall have held a captain's license for at least five years, the expiration of which must not have been more than three years ago. Then he must enter a competitive examination and take his chances with all other candidates. Captain Galvin is of the opinion that there will be no examination until February.

The report that the lumber barges were striking bottom in the draw of the International bridge is contradicted by Captain McMurray, of the tug International. Since the report was made he has carefully sounded the channel and finds that there is 23 feet of water 180 feet from the buoys above the bridge, and 35 feet in the draw, with no less than 18 feet a distance of 20 feet from the piers. There is therefore no wreck or other obstruction in the draw. Captain McMurray is of the opinion that the trouble at the head of Strawberry Island is on account of dumpings. This should be a case for the government engineer to inquire into if it appears as Captain McMurray suggests.

DETROIT.

Special Correspondence to The Marine Record.

The general shipping interests of Detroit, Mich., and particularly those of the coal trade will be promoted by the recent appointment of John L. Moore to be freight commissioner for the Merchants' and Manufacturers' Club of that city. His duty will be to look after the matter of uniform rates on all shipments from Detroit. For this new duty Mr. Moore is thoroughly competent, as he was formerly manager of the C. S. & C. R. R. at Sandusky, Ohio, consequently conversant with the duties of his new position.

The schooner Groton of Detroit, Capt. John H. Christie, left Cleveland loaded with coal for Hunt Bros., of London, Ont. She was caught in the gale of Wednesday night and came to anchor 12 miles west of Port Stanley, where she foundered at her anchors. The crew, consisting of six men, took the yawl boat and were drifting down the lake. Capt. Perry of the life-saving station went out and rescued them. The vessel will no doubt be a total loss, as she lies in about thirty feet of water. The Groton was owned by J. H. Christie of Detroit.

The Kendall Marine Reporting Co. has written Senator McMillan asking him to do all in his power to secure a medal for bravery for Capt. Root, of the steamer Mariposa, for the nifty rescue of the two sailors saved from the Idaho.

The senator has already secured one gold and one silver medal for Michigan men, and it was his bill which made it legal for others than the life-saving crew to receive these marks of honor.

CLEVELAND.

Special Correspondence to The Marine Record:

Lake rates on coal this week have been strong at 40 cents to Duluth and 55 cents to Milwaukee, and boats for the head of the lakes were very scarce, as most of the ore has come down for this season. There is, however, still some grain to move and coal rates will go higher.

The J. F. Fay, Sarah E. Sheldon and Superior, of the Bradley fleet, are being stripped to go into winter quarters at Toledo.

The Civil Engineers' Club meets in the Case Library building on the second and fourth Tuesday of each month, at 8 p. m.; the secretary is Mr. F. A. Coburn.

Capt. Peter Edgar, who is well known to nearly all Cleveland vesselmen, paid a visit to this port during the week and went down to Buffalo to lay up the Corning and Edgar fleet of vessels. Capt. W. A. Edgar, his eldest son, remains in Cleveland for the winter and will rusticate on the West Side until navigation opens again, so also will his respected father, Capt. Peter, be here after seeing the fleet in good shape at Buffalo.

I learn that Capt. John Edgar has just returned from Italy where he has been studying music, and is now engaged in a troupe exercising his vocal powers down south. Capt. John is simply a star sailor, like his voice is not only powerful, but charming and entrances all of his hearers. It is said that Miss Corning, of Saginaw, Mich., who was also in Genoa studying music, will shortly change her name. I know not, but, possibly her name will commence with E. instead of C.

On his return from Georgian Bay Capt. Ben Tripp floated around vessel circles this week. Capt. Tripp piloted the R. E. Schuck into Midland, Ont., when she was drawing 16 ft. 8 in., and he gives that port an excellent name. As the captain is one of the best Lake Superior and Georgian Bay pilots it can safely be assumed that after his twenty-five years' experience he would not state that Midland was a safe port for so deep a draft unless he was convinced of whereof he spoke. Although the season is drawing to a close Capt. Tripp expects to be kept busy until ice sets in and navigation is suspended.

Coal charters from here this week were placed at 60 cents to Lake Michigan, and 50 cents to Lake Superior or Escanaba, with a very firm outlook, so that a 10-cent raise is probable within the next few days.

The Menominee line steamer Norman docked this week in the Cleveland dry-dock to make repairs. The job is somewhat extensive, and it will no doubt cost about \$8,000 to put her in as good shape as she was before. The hull showed signs of weakness after pounding on the bar at Ashtabula deeply loaded with coal. The Gladstone went out of the dock on Wednesday.

Mr. Colby, of Pickands, Mather & Co., said that if ever a man was deserving of a medal from the United States government, Capt. Frank Root was the man. The Mariposa was in the very best of trim, he said, or Capt. Root could not have handled her in the manner he did. She was full of oats. When the men were taken from the masthead of the Idaho, the big steamer was making very little headway, although she was running with the gale as she was being backed for all there was in her. The following is from the Buffalo Courier-Record: "I simply can't express my admiration for the skill and coolness displayed by Capt. Root in his handling of the Mariposa when rescuing our men," said Mr. Douglass. "I never heard of anything better done in my life. It was simply a marvel of skillful management, and the man who could perform it must be a gallant fellow, a sailor and a disciplinarian. I hope he will get a medal from the United States government. I have sent him a letter thanking him as warmly as I know how. I don't know him, but I hope to some day, and in the meantime, if he ever wants anything in the line of a boat, and it is within my power to get it for him, the simple announcement of his name will settle the question."

Receipts of ore at ports in Cuyahoga district for October show quite a falling off compared with September, but coal shipments show a gain. The movement of coal was very heavy. During the month 405,552 tons were sent forward and Cleveland led with 225,679 tons, or more than all the other ports combined. In ore receipts Ashtabula is again to the front with 328,565 tons, and Cleveland is second with 299,795 tons. For the season Ashtabula will break all records for handling ore and Cleveland will drop back to second place again. Receipts of ore and shipments of coal for the different ports for October, according to the custom house figures, are as follows:

Ports.	Ore, gross tons.
Ashtabula	328,565
Cleveland	299,795
Fairport	94,027
Conneaut	9,232
Lorain	39,006
Total	770,625
	Coal, net tons.
Cleveland	225,679
Ashtabula	118,373
Conneaut	7,013
Lorain	33,387
Fairport	21,100
Total	405,552

FLOTSAM, JETSAM AND LAGAN.

The steamer Zenith City loaded 5,000 tons of coal at Buffalo for Duluth this week.

Next Friday the steamer Frank E. Kirby makes her last trip of the season to Sandusky and the Islands.

Considerable wreckage from the steamer Idaho has been found near Erie. No bodies have as yet drifted ashore.

The iron ore output for 1897 will probably reach 12,000,000 gross tons or 2,000,000 tons more than any past season.

The schooner Grace Holland, after discharging her cargo of ore at the Baltimore & Ohio docks, Sandusky, will winter at Cleveland.

The Lake Superior coal rate advanced to 60 and 70 cents from Cleveland this week and at Toledo 70 cents was offered to Milwaukee.

The steamer H. W. Williams is hauled out on the ways at Benton Harbor for a rebuild. She will be lengthened and widened. The cost will be \$25,000.

Capt. Davidson laid the keel for another big schooner Monday morning. This will make four big wooden boats, two steamers and two schooners in course of construction.

Captain Vosberg, master of the Cleveland steamer Ruben Richards, is seriously ill at a hotel at Alpena. He was taken ashore while his vessel was lying in shelter at Alpena, last week.

The entries and clearances of Manitowoc for the past month are the largest in its history, there having been 187 entries with a tonnage of 226,442, and 183 clearances with a tonnage of 222,864.

The Scientific American has issued a most interesting little treatise—"Hand Book on Patents," relating to patents, caveats, designs, trade marks, copyrights, etc., which is published by the proprietors, Munst & Co., 361 Broadway, New York.

The schooners Dashing Wave and Stewart were towed in leaving this week to East Tawas. On the Wave the crew had to resort to buckets to keep their vessel from waterlogging, which is a certain indication that the pumps could not keep her free.

F. H. Moreton's car ferry line is still having trouble at Sandusky. After finding the curves of the rail too sharp to run a car around it was discovered that insufficient allowance had been made for the slant of the crown of the dock, and as the cars were run aboard they toppled outward and nearly went overboard. Part of the crew came up on the Kirby and it is understood that the rest are retained on half pay on board the boats.

The tug Champion cleared from Sandusky on Wednesday morning with the barge Tycoon on the first trip to Detroit. The barge had on board eight cars of coal for the Grand Trunk railway. Mr. Moreton, president of the ferry company, attended to the loading of the ferry. The tracks on the barge Mikado will have to be replaced before cars can be placed aboard, a miscalculation having been made by the engineer in laying the rails.

The loss of the Idaho recalls to James Brown, of Saginaw, the foundering of the Dacotah, near Buffalo, with all hands in the early '60s. She was a fine passenger propeller, resembling the Idaho in appearance. She was commanded by Captain Cross, who before that had sailed some of the best lake steamers, and was everywhere recognized as a brave, skillful navigator. She left Buffalo in the face of a southwester, but was forced back against a rocky shore and went to pieces.

The survey on the steamer J. C. Pringle at Port Huron shows her damage to be larger than was at first expected. She will need a new rudder, shoe and several new planks, also recalcing all over. Her stern bearing is badly damaged. The loss will reach \$3,500. The loss and damages to the schooner Ben Harrison, of her tow, will come to \$1,800 or \$2,000. The damage consists of loss to sails, booms, gaffs, and rigging, and her cabin furniture, which was almost entirely destroyed.

A report comes from Toledo this week that Capt. Albert Renders, of the steamer Simon J. Murphy, has disappeared, and foul play is feared. The captain left the steamer Friday afternoon and since then he has not been seen. He had about \$1,000 in freight money in his pockets, and it is thought he was robbed and murdered. L. J. McCormick, one of the owners of the steamer, is trying to find traces of the captain. In the meantime the chief mate has taken charge, and Capt. Stalker, of the schooner Massasoit, shipped as mate.

At West Superior this week the crew of the steamer L. C. Waldo protested against the food that was being given them, and Roy Hutton, a deckhand, threw some biscuits on the deck while making his complaint, whereupon Captain John Duddleson and Mate Alexander Collins gave him a trouncing. Hutton swore out a warrant against Captain Duddleson and his mate, demanding damages in the sum of \$500. Service was had on the mate, and he has been placed under \$600 bail to appear for trial.

Captain Albert Renders, of the steamer Simon J. Murphy, who disappeared last Sunday while his boat was at Toledo, bucked the tiger at the Maumee city and lost \$800, and it is also said that he dropped \$450 at Duluth, recently. The captain claimed he was fleeced out of the money, and reported his loss to the chief of police. Renders received \$400 in cash and went away apparently satisfied. Nothing has been heard of him since. The captain resides at Buffalo, where he has a wife and family. The Murphy left Toledo, on Tuesday, in charge of another man.

A new hydraulic apparatus for loosening coal in mines without the dangers attending ordinary methods of blasting was lately exhibited by James Yonge, the inventor, before the Manchester (England) Geological Society. It consists of a hydraulic cartridge weighing thirty pounds, and eighteen inches in length, three in diameter; also a small, powerful hand pump fitted with a pressure gauge of about twenty pounds. The boring is done as usual, after which a cartridge is pushed in the hole. The pump is coupled to the cartridge, the suction pipe placed in a small bottle of water and work begun. Soon the gauge shows rising pressure up to two tons to the square inch. A cracking sound is heard where the coal is shearing off. In twelve minutes the pump is connected in another place. The work is done without shock or jar, and danger is prevented to both coal and roof.

NOTES.

The steamship Pretoria, sistership to the Pennsylvania, built in Messrs. Blohm & Voss' yard, at Hamburg, for the Hamburg-American Line, was launched on October 9. The new steamer is 586 feet long, 62 feet beam, and 42 feet deep. She has seven decks, and has a displacement of 23,500 tons and a carrying capacity of 9,500 tons. There is accommodation for 3,500 steerage passengers, and 204 first-class, and 124 second-class passengers.

The North Atlantic squadron now has its bicycle club which was started on the New York by the junior officers. The New York Times says: "Every ship in the service has its quota of wheelmen, who spend their leisure time when the vessels are in the harbor on their silent steeds. When the ships are at sea the wheels are safely stowed away, either below decks or in the quarters of the officers and men. The wheelmen are not only the younger officers or the men before the mast, but many of the commanding officers of the ships who saw service during the war have taken to the bicycle. Two more enthusiastic wheelmen than Capt. Silas Casey, commanding the flagship New York, and Capt. Francis J. Higginson, commanding the battleship Massachusetts, cannot be found. They have become expert riders, and while their vessels are in the harbor much of their leisure time is spent riding around the country. The North Atlantic squadron is not the only one that supports a bicycle club. The men attached to the Navy Yard at Brooklyn, as well as the marines there, have taken to the wheel. It is a common occurrence to see the bluejackets from the receiving ship Vermont or the marines attached to the barracks, either on Cob Dock or Flushing avenue, riding in the yard. The men attached to the ships of the squadron have an advantage over those on the receiving ship Vermont. As the ships visit many ports, the wheelmen attached to them can see different countries, and they are also given greater liberties than the men on duty at the Navy Yard. This, however, has not dampened the ardor of the wheelmen of the Vermont. They have built a track at the Navy Yard. In case of war we can form a landing party of naval bicyclers."

The Canopus, an English war ship, which was launched last month, is one of six of a new class of ships designed by Sir W. H. White, Director of Naval Construction, three of which are building in the Royal dockyards and three by contract at private yards. Her principal dimensions are: Length between perpendiculars, 390 feet; breadth, extreme, 74 feet; mean draught, 26 feet, with a displacement of 12,950 tons. She will be fitted with twin-screws, each driven by an independent set of triple-expansion engines, with three vertical cylinders of the collective horse-power of 6,750, giving an aggregate indicated horse-power of 13,500 for the two sets of engines. The boilers are of the Bellville water-tube type, the first of the kind used in any battleship of the British Royal Navy. The disposition of the protective armor is similar to that of the Majestic class, combining the advantages of the turtle-back decks of the cruisers with those of the citadel armor of previous battleships. The armament is to consist of four 12-inch breech-loading guns, twelve 6-inch quick-firing guns, ten 12-pr. quick-firing guns, six 3-pr. Hotchkiss guns, one 12-pr. 8 cwt. boat's gun, one 12-pr. cwt. field gun, and eight 0.45-inch Maxims. Four submerged torpedo tubes will be fitted to fire 19 Whitehead torpedoes. Two steel masts, each with a fighting top, will be fitted, the latter taking three 3-pr. guns each, with the necessary magazines and equipment. Above the fighting top each mast will carry an electric light platform for working powerful searchlights. Sixteen boats will be carried, including three steamboats, as well as six searchlight projectors, worked by three dynamos, each of 600 amperes 80 volts. Upon completion the vessel will be commissioned with a complement of 750 men, including the officers, or rather, all told on board will amount to the above number.

THE ST. LAWRENCE BUOYS.

The officers of the Department of Public Works have been complaining for some time past that the buoys in the river St. Lawrence have not been properly placed by the Marine Department and the Harbor Commissioners of Montreal. Some time ago a buoy was dredged out of the river. Mr. James Howden, superintendent of dredging, telegraphed the Public Works Department that he found three buoys a long way out of position. One was 100 feet, another 75 feet, and the third 60 feet from where they ought to be. Mr. Coste, the Chief Engineer of the Department of Public Works, has asked the secretary of the Harbor Commissioners, to warn the pilots.

EASTERN FREIGHT REPORT.

Messrs. Funch, Edye & Co. furnish THE RECORD with the following eastern freight report for the week :

Our freight market for steamers shows but little change from that of the preceding week. The inquiry for spot or safe November tonnage for Cork f. o. continues, and both charters and re-charters have been effected for such boats at 4s. The rate for December bottoms has advanced to 3s. 10½d. for January to 3s. 7½d. Large boats with proportion of oats for picked ports can be placed for December at 3s. 1½d. and 2s. 9d., for January at 1½d. less, whilst a fixture for February is reported at 2s. 10½d. and 2s. 6d.; the demand for such tonnage beyond December loading has hitherto been inactive, but a somewhat better inquiry is just now beginning to show itself. For the privilege of portion of general cargo for more distant months 1½d. additional would be obtainable; near-by boats granting this privilege can secure further advance. A fairly large list of time boats will be found subjoined. Charters for cotton from the Atlantic ports show a slight advance over last figures obtained; the inquiry is for prompt boats, and does not go beyond December. The demand for steam in the case oil trade to the far East has momentarily stopped, in view of liberal engagements of sail tonnage. No demand at the moment from the timber ports.

Our list of charters of sailing vessels shows the accomplishment of large business in case oil to the East, at about previous rates, but the development of trade in other branches continues hampered by the scarcity of tonnage and the consequent difference in views of owners and shippers. There is more inquiry for general cargo for the Colonies and in other directions, but very little has been done in this line. Naval stores freights are quiet, but without material change, and the same may be said in regard to lumber freights for South America and timber freights for Europe.

SHIPBUILDING IN JAPAN.

In his annual report on the trade and navigation of the port of Nagasaki for the year 1896, Mr. Consul Longford makes the following remarks on the subject of shipbuilding at Nagasaki:

"Considerable extension was made in 1896 to the dockyard and engineering works at this port, the largest dock having been lengthened so as to be capable of receiving ships up to 500 ft. in length, and the construction of a new dock of a length over all of 371 ft. having been completed. Very extensive additions were made to the moulding, boiler and engine shops, and all modern machinery provided that was necessary to render the works efficient in the highest degree. A large machine shed for iron workers, and new sawmills and joiners' shops are now in process of construction, and all the valuable machinery required for them has already been ordered from England. Designs are also in hand for a graving dock of the largest size. These works, carried on under liberal and enlightened management, with the assistance of European experts in all branches, long since acquired a high reputation for good and economic workmanship in the docking and repairing of vessels of every description and nationality, from ironclad cruisers of the first class down to coasters, and many small steamers for coasting trade in Japan have been built and completed with engines, boilers and all fittings. During the past year more ambitious undertakings were started, and the building of ocean-going steamers for the first time undertaken. One steamer of 1,500 tons registered tonnage, built under the strictest requirements of Lloyd's special survey, for one of the principal shipping companies of Japan, has already been completed, and was successfully launched early this year, and another of 6,200 tons registered tonnage, with a speed of 12½ knots, is now under construction, and so far advanced towards completion that her launch may take place in November. The latter is being built for the National Mail Steamship Company (Nippon Yusen Kaisha) on similar designs to those on which steamers have been recently constructed for the same company on the Clyde, and the result of this experiment, as to whether she can be completed in Japan at no greater cost than if built in England she could be delivered here, should be, and is by the Japanese themselves, awaited with much interest. The best hopes entertained were that her cost would be no greater, but as many special expenses had to be incurred on her account, it is equally hoped that if this result is attained in the present instance, much better ones will, with the aid of the experience, be attained in the next. Before the present could be commenced at all, considerable alterations had to be made in the arrangements of the yard,

so that the machinery necessary for laying the frames and beams of so large a vessel could be suitably placed, new furnaces and sheds had to be built, and workmen hitherto accustomed to deal with frames of at the outside three inches in diameter, taught to deal with those of six inches, with proportionate increase of length and weight. The services of a distinguished English shipbuilder were engaged, and under his superintendence the construction of the vessel is now proceeding, it being the desire of the Japanese to turn her out complete and ready for sea in no longer time than that in which the same result could have been attained on the Clyde. So well satisfied are they with their present progress, that material is now being ordered from England for a second vessel of the same type and dimensions for the same owners, and the Japanese may, therefore, be said to be now well started on a career of ocean steamship building. Two other large steamers are also in progress of construction. One, a steamer of 2,500 tons is in frame, but this vessel being intended for the owners of the yard, work is temporarily suspended in favor of the steamers building to order. The keel of another vessel intended to be used as a training ship by the Tokio Mercantile Marine School is also laid. The latter will be a sailing vessel with auxiliary steam power capable of a speed of six knots, built of steel, with cellular double-bottom throughout entire length, of 1540 tons registered tonnage, and 238 feet in length. Designs are in preparation for two salvage steamers to be built principally of wood, but with bulkheads and ballast tanks of steel, and a large amount of work is being done as well in the construction of steam launches and general repairs. Under the latter heading, 24 vessels of war of various nationalities, of an aggregate tonnage of 63,104 tons, and 65 merchant steamers, of 190,668 tons, were docked during the year, and 36 vessels, of 21,047 tons, placed on the slips.

IRON ORE.

Relative to the iron ore output the Iron Trade Review says: The statement of iron ore shipments from upper lake ports to November 1, as officially made up, shows a total of 11,270,283 tons, as against 9,093,207 tons to the same date last year, an increase of 2,177,076 tons. This enormous movement, taken in connection with the dock delays, car scarcity and low freight rates of the present season, tells a significant story of the added capacity of vessels with the depth of water they have had this year. Last year's November movement was about 575,000 tons. It is probable that this month's total will be quite as much and that the year's total, with all-rail shipments to charcoal furnaces, will get up close to 12,000,000 tons. If consumption keeps up at today's rate, it will all be needed.

AMERICAN MERCHANT MARINE.

Mr. Charles H. Cramp, of Philadelphia, discussed the subject of "The American Merchant Marine" at a recent session of the New York Board of Trade and Transportation. Mr. Cramp urged the necessity of increasing American shipbuilding in order to make this the greatest ship-owning nation. As the American people cannot own ships unless they are able to build them, so also they cannot build ships unless Americans wish to own them. The prevailing indisposition on the part of Americans to own ships was due to the fact that under existing conditions such investment was not profitable; that property in ships was not a desirable investment. Mr. Cramp said he, of course, meant this with respect to ships engaged in foreign trade. In our coastwise and lake traffic, from which foreign competition is excluded by law, ship property was profitable and constantly invited investment. But the possibilities of that traffic were limited and its limits always crowded.

Mr. Cramp made a strong plea for the building of American ships.

The Newport News (Va.) Ship Building and Dry-Dock Co. is erecting a crane capable of lifting 140 tons. This crane is to be used for the placing of engines, boilers and other machinery in the large war vessels under construction for the government, and will be also used for placing armor plates on the sides of these vessels, some single pieces of which weigh from 40 to 50 tons. The crane will have sufficient reach so that it will cover the entire width of a large cruiser. It revolves in a circle on a turntable which is supported on a steel foundation about 25 feet high. The steel foundation is to carry, besides its own weight, the weight of the crane, its machinery and whatever load may be lifted, which altogether will aggregate 900 tons. The steel support for this crane is being furnished and erected by the Berlin Iron Bridge Co., of East Berlin, Conn.

A NEW RECORD BREAKER.

(The Marine Engineer, London).

The performance of the new North German Lloyd steamer Kaiser Wilhelm der Grosse has led to a vast amount of ink-spilling and of discussion. Some people say she is the fastest vessel on the Atlantic, others say she is not. Some say that we have lost our maritime supremacy through her advent because she was built in Germany, whilst a writer in the Daily Mail has actually claimed her performance as a triumph for British shipbuilding—so I am credibly informed—because he has discovered that she was built and engined at Belfast. After such drivel there is little to be said. That she is the largest vessel at present at work on the Atlantic is certain. Equally certain is it that she was put together and is owned in Germany. We cannot deny that whereas a few years ago all fast steamers in the world were under our flag, Germans, Americans and Frenchmen now all have their share. And their shares are increasing whilst ours seem to be diminishing, and must be so, at least relatively. But when we have said that, we have said all. The Kaiser Wilhelm der Grosse is certainly a vessel of which all concerned may be proud. But she has done nothing to alarm us. She is built with the benefit of the accumulated experience of the world as it now stands in the building of big fast steamers. She is bigger than anything afloat. She is intended to beat anything now at work and with that object she has been given greater power than any vessel in the British Mercantile Marine. As faithful work and skilled design has been put into her it is not remarkable that she has proved herself fast. But that is all. Belfast is even now building for the White Star Line a larger vessel, though those concerned strenuously protest that she is not being built for speed. That we shall see. The British shipowner for a moment may feel that German enterprise has outrun his. But then he has the consolation of remembering that he has to flourish as best he can in spite of his government, whilst the German government by money and by legislation in every possible way fosters his rival. But the British shipbuilder need feel no slight here. The German shipowner goes to a German shipyard because the laws of his country—by which he so largely benefits—makes him do so. Given the order, whatever it be, and no doubt the British shipyard could execute it.

As to the speed of the new vessel, I will briefly give details of her two outward and one homeward run as yet completed and will remark that her second westward trip, owing to bad weather, happened to be a trifle worse in time and in speed (both mean and of best day) than that of her maiden trip. But nothing beyond an allusion to the fortune of war is to be conveyed by this remark. I do not believe in the truth of that ungenerous reminiscence of the maiden trip of the America, the National Line record-breaker of fifteen years ago.

On her first outward voyage the Kaiser Wilhelm der Grosse captured the record between Southampton and New York, previously held by a Cramp-built American liner. On her first trip eastward she lowered the New York to Plymouth record, which was then in the possession of the Hamburg Line. She also, on the maiden run, took the record for a day's steaming to the westward from the Cunard Line.

Her best day's steaming to the westward was 564 miles. Returning, she did a best day of 519 miles. The French mode of comparison as to maximum speed avoids all calculations as to the respective length of the days in each direction. It adds those two together. That makes a total of 1,083 miles, which divided by 48 (the number of hours in two average days) gives the Kaiser a best speed of 22.5 knots. This is a very good best speed indeed. She has not, however, as yet touched the mean speed of the great Cunarders for a whole trip across the Atlantic.

DETAILS OF RUNS.

Westward:—		Arrived	
Left Needles.		Sandy Hook Lightship.	Passage.
No. 1. 2 a. m., Sept. 21.	5:05 p. m., Sept. 26.		5 22 45
No. 2. 2:50 p. m., Oct. 13.	9:55 a. m., Oct. 19.		5 23 55

DAILY RUNS TO RUN EACH DAY.

		Average Speed	
		Total Distance.	Throughout.
No. 1. 208, 531, 495, 512, 554, 564, 2,864 miles.			21.39 knots.
No. 2. 488, 532, 545, 542, 436, 512, 3,055 "			21.25 "

Eastward:—

Left Sandy Hook.		Arrived Plymouth.	
No. 1.	6 p. m., Sept. 30.	3:05 p. m., Oct. 6.	Passage.
			5 15 10

DAILY RUNS TO RUN EACH DAY.

No. 1: 267, 504, 500, 507, 510, 519.	Distance, 2,962 miles.
	Speed 21.91 knots.

It will be noticed that on her maiden trip she gradually worked up to her great performance at the end. On the next trip her early days were an improvement on those of the previous voyage, but she fell away at the end, owing to explained, to heavy weather. If this is so we have not yet seen her best speed by any means.

BREAKWATER CONSTRUCTION ON THE AMERICAN COAST.*

BY LOUIS Y. SCHERMERHORN.

The question in favor of random stone or brickwork construction along our ocean coasts has been decided by the fact that an abundance of durable stone has been found along that part of the Atlantic north of Cape Hatteras, and along the Pacific Coast, and this fact, supplemented by the modern methods of cheap quarrying and handling of stone, has made its use much more economical than that of concrete blocks.

It is difficult to estimate, except approximately, the force or impact of breaking waves, but observation and experience have shown that in some cases the force has exceeded 4,800 pounds, and have probably reached 6,000 pounds per square foot. The height and force of impinging waves at any locality depend upon the speed and duration of winds, the depth of the water, the "fetch" or distance over which the waves move, and the angle of incidence at which they strike the breakwater. Previous to the laying of the first Atlantic cable, an effort was made to collate the most reliable information upon the height of waves, with the result that fifty feet was decided upon as the maximum value.

Since the wave-action which is necessary to arrest by a breakwater does not extend to a great depth below the surface of the water, the superstructure and the upper part of the substructure are the effective parts of the breakwater, and are subjected to the most destructive action of the waves. Generally the necessary dimensions of these two parts determine the dimensions for the remainder of the work; and while the superstructure must resist severe wave-action, it must also preserve the needed tranquility of the areas behind it by being carried to a height sufficient to prevent waves being thrown unduly over the top of the structure. Experience upon American breakwaters has shown that the depth to which energetic wave-action extends is about twelve or fifteen feet below the water's surface, and this depth is therefore assumed as the approximate plane of rest for the material which is used. For breakwaters in tidal waters, the position of this plane must vary with the amplitude of the tide.

The sea-slopes of a random stone breakwater must, therefore, be divided into three parts: (1) the part below the plane of rest, (2) the part between the plane of rest and the surface of the water, and (3) the part above the surface of the water; while on the harbor side but two divisions of the slope need consideration, namely, that above and that below the water-surface. On the sea-face below the plane of rest the random stone will assume a slope coincident with the angle of repose of the material unaffected by the wave-action; on the part between the plane of rest and the surface of the water the slope will be formed by wave-action, modified by the dimensions of the stone; while above the surface of the water, on both faces of the work, the slopes will be artificial, and dependent upon the size of the stones and the care with which they are laid.

Under American experience and practice the general slopes of the several parts of breakwaters are as follows:

Sea-face below the depth of 12 to 15 feet, 1 on 1 to 1 on 1.5.

Sea-face from 12 to 15 feet depth to low water, 1 on 3.

Sea-face from low water to top of superstructure, 1 on 0.7 to 1 on 1.

Harbor-face from bottom to low water, 1 on 1 to 1 on 1.3.

Harbor-face from low water to top of superstructure, 1 on 0.7 to 1 on 1.

The superstructure usually has a width on top of about 20 feet; and upon the two most recent works, namely, the breakwater for the National Harbor of Refuge in Delaware Bay, now in progress, and the proposed breakwater for the Harbor of Refuge in Southern California, at San Pedro, the top of the superstructure is placed at a height of 14 feet above the plane of low water. With these dimensions and slopes above given, the breakwaters at these localities attain a width of about 40 feet at the plane of mean low water; and 12 feet lower, at the assumed plane of rest, the width is about 90 feet.

The history of the work seems to indicate that the board of commissioners who designed the Delaware breakwater in 1828 were materially influenced by the dimensions of the European breakwaters of that date, and that some time after its commencement those in charge probably abandoned the original cross-section, and in place thereof sought to obtain such slopes as would result directly from the action of the

*Extracts from a paper presented before the Engineers' Club of Philadelphia, October 16, 1897.

waves. The resulting cross-section, is, therefore, probably a compromise between anticipated and realized slopes in the several parts of the structure. The active sea-slopes of the Delaware breakwater in the flattest places are about 1 on 3, while in the European examples at Portland, Plymouth and Cherbourg these slopes are from 1 on 4 to 1 on 8; and while the Delaware breakwater is not exposed to the force of such seas as are thrown upon the European works above named, it is highly probable that its slopes, through the method by which they have been gotten, are more nearly in equilibrium with the forces which are imposed upon them.

As a method of depositing the stone in the three different sections of a breakwater, one of the latest improvements is the method now in operation upon the new breakwater in Delaware Bay, where the material below the assumed plane of rest, as well as a part above this plane, is transferred to the work in dump scows of 1400 tons capacity and specially arranged construction, whereby the entire load is released at once, without the intervention of labor or machinery, and is deposited en masse, through the bottom of the scows, directly upon the width of section where the material is wanted.

While harbors of refuge are but seldom used by the larger class of ocean steamers, they are of the greatest utility to sailing vessels or steamers, carrying barges in tow, and for coastwise commerce, and they are therefore placed at localities which make them most convenient of access to these classes of vessels.

TWINE AND ROPE IN URUGUAY.

The United States consul at Montevideo submits the following report in answer to various inquiries made about the imports of twine and rope into Uruguay:

IMPORTS OF TWINES AND CORDS OF THE AGAVE OR ALOE PLANT.

Countries of Origin.	Quantity.		Value.
	Kilograms.	Pounds.	
Italy.....	46,569	58,580	\$8,017
United States.....	10,071	22,202	6,396
England.....	8,911	19,645	2,261
Belgium.....	2,408	5,308	1,089
Spain.....	1,288	2,839	644
Germany.....	586	1,291	293
France.....	400	881	200
Argentine Republic.....	60	130	30
Total.....	50,293	110,876	18,930

1 Kilogram=2.2046 pounds.

The duty on the above is 31 per cent., 5 per cent. and 2½ per cent. on a valuation averaging from 50 to 76 cents per kilogram.

The imports of twines and cords of hemp from England amounted to 220 kilograms (485 pounds), valued at \$110.

IMPORTS OF ROPE IN GENERAL.

Countries of Origin.	Quantity.		Value.
	Kilograms.	Pounds.	
Italy.....	139,728	308,044	\$30,515
England.....	155,281	342,332	28,490
United States.....	45,081	99,385	9,032
Germany.....	21,969	48,432	4,129
Belgium.....	20,007	44,107	3,860
France.....	8,950	19,731	1,963
Argentine Republic.....	4,433	9,762	723
Spain.....	622	1,370	137
Total.....	396,071	873,163	78,849

The duty on the above is 31 per cent., 5 per cent. and 2½ per cent. on a valuation of manilla at 21 cents per kilogram, and lesser qualities at from 15 to 19 cents per kilogram. This does not include so-called machine twine, used for harvesting purposes. The latter article is entirely separate from the ones named above, on account of being under a different tariff schedule. The quantity of this article imported from the United States alone in 1896 was 467,871 kilograms (1,031,469 pounds), valued at \$149,718.72. The duty is, on a valuation of 32 cents per kilogram, 5 per cent. and 2½ per cent.

The Detroit Graphite Co., manufacturer of the Superior graphite paint, has opened a branch office in the Tradesmen's building, Pittsburg, in charge of George H. Richardson. This paint is used largely on structural steel, tanks, boilers or metal work exposed to heat, cold or acids.

MARITIME LAW.

THE ALBANY.

MCCULLOUGH et al. v. THE ALBANY.

Circuit Court of Appeals, Second Circuit. July 21, 1897.

ADMIRALTY APPEALS—WEIGHT OF EVIDENCE—COLLISION—FINDINGS BELOW.—When the district judge has rejected the positive testimony of witnesses who were in the best position to know the facts, and has accepted the testimony of others whose opportunities of knowledge were not so good, on the expressed ground that the rejected testimony does not harmonize with some theory as to the movements of the vessels, or with the inherent probabilities of the case, there is no reason why the appellate court may not review the testimony unembarrassed by the findings below.

SAME—COLLISION BETWEEN FERRYBOATS—EVIDENCE.—The ferryboat S. left Chambers street, New York, for Pavonia ferry, Jersey City; going up the river a little eastward of the higher ferryboat H., which hid her lights from vessels to the westward. The ferryboat A., coming down from Weehawken, and bound for Franklin street, New York, was at the same time obscured from the S. by the H. The A. turned in under the stern of the H. to make her slip, and then came in view of the S., when it was too late for either to avoid collision. Held, on conflicting evidence, that the S. maintained her course up the river, and did not also turn in under the H.'s stern, as contended by the A., and that she was not, therefore, guilty of any contributory fault. 74 Fed. 314, reversed.

Appeal from the District Court of the United States for the Southern District of New York.

This is an appeal from a decree of the district court, Southern District of New York, apportioning the damages in an action arising out of a collision between the libelants' ferryboat Susquehanna and the claimants' ferryboat Albany. The district judge held both vessels in fault, but only the libelants appealed. 74 Fed. 314.

THE ST. PAUL.

MERRITT et al v. THE ST. PAUL.

SAME v. INTERNATIONAL NAV. CO.

District Court, S. D. New York. July 24, 1897.

SALVAGE—COMPENSATION—PROMPTNESS OF SALVORS.—Promptness of salvors in reaching a stranded steamer, and thus preventing her from going further up the beach, and in getting everything in readiness to haul her off at the first possible opportunity, and thus avoid the great damage incident to long continued grounding, is an important element in determining the compensation.

SAME—WRECKING APPLIANCES.—In fixing the amount of salvage, the importance of maintaining wrecking companies with powerful and costly appliances, ready at a moment's notice, by night or day, to repair to the scene of disaster, is to be taken into consideration.

SAME—AMOUNT OF COMPENSATION.—\$160,000, awarded for 11 days' salvage operations by a large part of the wrecking force of the Atlantic coast, the total value of the appliances used being some \$400,000, with the services of 205 men, and an outlay of about \$10,000 in cash, which operations resulted in getting off the beach near Long Branch, N. J., the liner St. Paul, which was 535 feet long, valued at \$2,000,000, with a cargo worth \$1,999,139, and freight amounting to \$16,902.

UNLADING AND DELIVERY OF CARGO—SEVERANCE OF INTERESTS.—Where a vessel is stranded near the end of her voyage, so that the cargo may be unloaded and delivered to the consignees, and such unloading is equally necessary for the lightening of the ship in order that she may be got off, and for the safety of the cargo, this part of the salvage operation is to be regarded as done in the common interest and for the common benefit, and the award, therefore, borne in common; but by such unloading and delivery there is a severance of interests, and the subsequent expense of getting the ship afloat must be borne by her alone.

SAME—AGAINST SPECIE CARGO.—No distinction can be made in the proportion of the salvage award charged against different portions of the cargo, and specie must bear the same pro rata charge with the rest of the cargo.

These were two libels, one in rem against the steamship St. Paul, and the other in personam against her owner, the International Navigation Co., to recover for salvage services rendered to the said steamer by the libelants, Israel S. Merritt and Israel J. Merritt, Jr., composing the Merritt Wrecking Organization, and the president and the directors of the Insurance Company of North America.

BROWN, District Judge.



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PRIORITY OF MARITIME LIENS.

Now that the storms of November are upon the lake mariner, it will be appropriate to consider some of the points that take precedence as regards maritime liens, especially as vessels are now in great danger of being stranded or foundered. The subject of insurance is also attracting much attention at this time.

A vessel which has entered upon its natural mission, fully equipped and laden, must necessarily encounter the perils of the sea. If overcome by the fierceness of the storm, disabled and likely to be swallowed up by the waves and lost, the master and crew, her natural protectors, despairing of her life, may naturally abandon her to her fate. In such case, whoever interposes successfully for her salvation stands in the highest order of merit, and by every equitable consideration deserves that no other party should come between him and his just reward. Salvage, therefore, by common consent outranks all other claims upon the inadequate fund. Similar considerations, though operating to a less degree, apply to claims for property sacrificed by jettison for the relief of an overloaded and distressed vessel, prosecuted under the title of general average, and which, it is believed, should rank next to salvage.

Then should follow the claims of seamen, who brave the perils and hardships of navigation, for their wages, seldom adequate to the risk they take during the more stormy months of the year, and justly regarded with favorable solicitude by courts of admiralty. Sailors are sometimes said to be the "wards of the courts," and their compensation ought, it is believed, to stand third in rank to the priority of payment.

Those who lend money in a foreign port to a vessel which has been disabled by storm or otherwise enable the master to repair his vessel and proceed on his voyage, not only performs what is in itself meritorious but take upon themselves great risk. This is done upon what is known as bottomy bonds, which in case of arrival of the vessel at her port of destination are justly considered as of high privilege.

Other liens against a vessel are perhaps recognized in the following order of priority: Supplies, repairs, etc.; wharfage; demurrage, stevedore services; damage by collision; unpaid premiums on insurance; brokerage services; mortgage.

As the insurance upon a ship is of great moment at this time we will consider that subject more in detail. It has been held by authorities upon the subject that insurance upon a vessel is not insurance of the vessel, but simply to protect the owner against loss to himself growing out of the perils of navigation. In case of loss the amount of the unpaid premiums is customarily deducted from the amount of ascertained loss, and the balance paid by the insurer. But in case of the insolvency of the ship, and insufficiency of

the fund in the registry, it is difficult to understand that such a claim upon the fund has any foundation of principle to stand on.

The contract of insurance upon a vessel is a contract for the personal indemnity of the owner. The credit is given to him, not to the ship. The principle upon which the law recognizes a lien for necessities is that the ship may thus be enabled to engage in the competitions of commerce. Security is given the material men, it is true, but the chief benefit is to the ship. She sails no better and no faster because of the insurance. It puts no steam in her boilers nor wind in her sails. Insured and uninsured vessels are tossed alike by the tempest, and are alike liable to the peril of winds, waters, and rocks. Indeed, there are those uncharitable enough to assert that a liberal insurance upon a vessel does not tend to make her master and crew more diligent in guarding against danger, or more obstinate in abandoning her to her fate. It is argued with considerable force that the contract is frequently one for indemnity against partial as well as total loss and contains numerous provisions for repairs, salvages, etc. But these provisions are incidental to the main agreements, are often optional with the underwriters, and inserted for their benefit rather than for that of the insured. It is in this respect different from every other service to which a privilege attaches. If insurance were regarded by the admiralty as essential for the proper equipment of a ship, would not the ship's husband and master be permitted to contract for it? Yet neither can do this though both have the right generally to bind the ship for necessities.

If in case of loss the liens are transferred to the insurance money, there would be great cogency in the argument that the ship is benefited. An insured ship would then be able to offer additional security to those furnishing her with necessities. But such is not the case. In case of loss the maritime liens do not follow the insurance money. That money goes to the owner and not to the lien holder, who may insure his own interest. Upon what principle of law could an owner of one-twentieth part be permitted to create a lien upon the other parts of the vessel because he is in default to the underwriters for the risk they have run on his behalf? A case might easily be imagined where the insurers could seize a vessel and sell her, or cause great loss, upon a claim for premiums and policy issued to a lien holder or mortgagee. Parties having interests of this character ought not to be permitted to protect them at the expense of the ship. And yet, if the principle is once admitted, upon what theory can they be excluded? Unless the ship is benefited she should not pay.

Now comes on the time when underwriters are liable to lose the bulk of their premiums. The hard weather of the fall will no doubt call a few of the older tonnage hence and therefore rid the lakes of undesirable property. As a class, there are but few poor risks now in the lake trade and insurance is fairly well placed on any bottoms recently built.

LAKE FREIGHTS.

Coal is now paying 60 cents to Lake Superior, an advance of 10 cents with the outlook almost certain for a 5 cent raise.

Grain charters at Chicago were made this week from 1 3/8 cents to 1 1/2 cents with plenty of tonnage offered, 2 cents is quoted from Duluth.

Iron ore is slow at previous rates, though some chartering has been done this week on cargoes from Escanaba. Lake Superior cargoes are nearly all booked ahead and the freight market is more than dull.

FINES REDUCED.

The Treasury Department has reduced the fines of \$200 imposed on F. W. Gilchrist and the American Transportation Company by customs officials for alleged violation of navigation laws.

It is said that the Norseman and Alex. Nimick failed to exchange proper signals in passing each other at the Butler street dock in the St. Clair river, off Port Huron, and a fine of \$200 was levied on each. Both owners protested with the department with the result that the fine in each case was cut down to \$25. The customs collectors at Cleveland and Port Huron will be so instructed. The plea of the masters of the vessels was that they did not see each other's boat in passing and therefore could not signal.

ORE RECEIPTS.

The October ore receipts were: Ashtabula, 328,565; Cleveland, 299,795; Fairport, 94,027; Lorain, 39,006; Conneaut, 9,232; total, 770,625.

INCREASE OF THE NAVY.

OPINIONS OF SENATORS CHANDLER AND PENROSE.

Being asked by the Army and Navy Journal for an expression of his opinion on the subject of the reorganization and increase of the Navy, the Hon. William E. Chandler, a member of the Senate Committee on Naval Affairs, and late Secretary of the Navy, answered in his usual vigorous style as follows:

"I favor a continued increase of the navy on suitable lines involving moderate expenditures annually.

"I think we should delay building any more battleships until we can get armor at a cost somewhat nearer \$240 per ton, for which the Bethlehem Company furnished armor to the Russian government, than the price of \$550 per ton which is paid by the United States under existing contracts to the Bethlehem and Carnegie companies. The next new constructions should be vessels of moderate cost. Gunboats, and especially torpedo gunboats should be built, and there should be liberal expenditures for ordnance, including guns for the great commercial ships, the New York and Paris, the St. Paul and her sister ship, and liberal expenditures should be made for projectiles and modern powder.

"There could be a reorganization of the personnel of the navy in various directions with benefit to the service, but so long as the officers differ so much among themselves, and the line and staff controversy continues, there will be no legislation improving the personnel.

"The Government should not build an armor plant except as an act of extreme necessity. It has already encouraged private manufacturers till they defy the department and Congress and demand exorbitant prices. Therefore, the government should compel them to manufacture all further armor which may be needed at a reasonable price. This compulsion can easily be exerted when Congress and the Secretary become in earnest.

"I favor an increase in the number of docks, but I do not see the necessity of a larger number of docks at present. The wise, important and constant struggle since 1882 has been to create a navy on the ocean and not upon the land. The old system was to maintain many and expensive navy yards, and an effort in its behalf is about to be renewed, but I expect to remain in favor of an ocean navy and not a land navy; in favor of the construction of ships and the employment of officers and men to go to sea, not to slumber in ports or docks.

"The Naval Reserve should be liberally assisted and efficiently maintained, and will prove of immense value in case of naval warfare. Generally as to the size of our navy, I think it should exceed that of any western hemisphere nation, be larger also than any possible navy of Spain, and great enough in conjunction with the navies of France and Russia to successfully maintain defensive and offensive warfare with the English navy."

WHAT A MEMBER FROM RHODE ISLAND THINKS.

The Hon. Melville Bull, member of the House from Rhode Island, says: "Since I have served on the Committee on Naval Affairs in the House I have become much interested in the growth of our new navy and believe that Congress should not stop until our naval equipment is raised to a standard that will place us on a footing with other nations. I think our particular need at this time is the speedy completion of the ships we now have on the ways under construction, more torpedo boats, and, above all, dry docks."

NOTICE TO MARINERS.

Lieutenant Stafford, U. S. N., in charge of the branch hydrographic office at Cleveland, issues the following notice: "The wreck of the schooner Groton lies nine and one-half miles SW. by W. from Port Stanley light-house, and one and a half miles SE. from Talbot (Plumb) Point in forty feet of water with twenty-five feet of water over her deck. Both masts are out of water, but the fore topmast is gone. This information is furnished by the keeper of the Port Stanley life-saving station.

The success attained by the Dry-Dock Engine Works, Detroit, Mich., in fitting lake steamers with the Howden hot draught apparatus has led the inventor to extend to this company the right to equip steamers on the Atlantic coast. The advantages of this draught on coast steamers are even greater than on vessels of the lakes, as in most cases fuel is more expensive on the coast, and the great feature of the Howden draught is the reduction in coal bills effected by its use. Coast shipbuilders will find it profitable to correspond with the Detroit company concerning this economical device.

CONTRIBUTORY NEGLIGENCE.

The following remarkable ruling is republished from the Bulletin of the Department of Labor, No. 12, Sept. 1897:

NEGLIGENCE OF EMPLOYEES—LIABILITY TO FELLOW-SERVANT.—Atkins vs. Field, 39 Atlantic Reporter, page 375. This was an action on the case brought in the superior court of Cumberland county, Me., by James R. Atkins, against Edward L. Field to recover damages for personal injuries received by the plaintiff while in the employ of the United States government in the construction of fortification work at Cape Elizabeth, Me., caused by the fall of a derrick, due, as alleged, to the negligence of his co-employee, Field. The evidence showed that the plaintiff, Atkins, was employed as a laborer and the defendant Field, as general overseer of the work; that Field, in the line of his employment as overseer, personally assumed charge of the work of rigging the derrick and setting it up; that he personally selected all the material to be used—wire, rope for guys, bolts, etc.; that he personally selected the places for anchoring the guys, and, in fact, took full charge of everything connected with the putting up of the derrick; that in this he acted entirely upon his own judgment in the first instance, though he afterwards called the attention of the engineer officer in charge to what he was doing and obtained his ratification; that after the derrick had been set up the defendant, as overseer, undertook to change the location of the mast of the derrick, and while having the same done a bolt at the foot of one of the guys broke and the derrick suddenly fell; that the plaintiff was at work near the foot of the mast, under the direction of the defendant and that, without fault on his part he was injured by the falling mast. A judgment was rendered for the plaintiff, and the defendant carried the case to the supreme judicial court of the state on exception to an order of the superior court refusing a new trial. The supreme court rendered its decision June 8, 1895, and sustained the judgment of the lower court.

The opinion of the supreme court was delivered by Judge Emery, and from the syllabus of the same, which was prepared by the court, the following, giving the gist of the decision, is quoted:

"1. An employee is responsible to a co-employee for injuries caused by his negligence in the line of his duty to the common employer.

"2. When the common employer approves the conduct of an employee without directing it, that does free the latter from the responsibility to a co-employee, if he was in fact negligent.

"3. When an employee personally selects the means and directs the mode of setting up apparatus furnished by the common employer, he becomes personally responsible to co-employees for injuries caused by his negligence in so doing; and the fact that the work was satisfactory to the common employer does not excuse the employee from the consequence of his negligence to others.

"4. The foregoing rule does not apply where the common employer or his agent directs and controls the means and modes of setting up the apparatus. There is responsibility only where there is freedom of action."

CHICAGO NAVIGATION SCHOOL.

The Chicago School of Navigation opened this week at 28 Michigan avenue. It was a preliminary meeting for Principal W. J. Wilson, to discuss the work for the year. Twenty-eight have signified their intention of joining the class, and about half of these were present.

The nautical school was started during the winter of 1895-6, at the earnest solicitation of a number of vessel captains and yachtsmen; and that it has proved successful is evidenced from the fact that some sixty-five attended the school last winter. Thirty-five of these were yachtsmen and members of the naval militia, while the remainder were vessel captains and mates. It may be considered a missionary outpost of the Chicago branch hydrographic office, for every captain or mate who is a pupil immediately becomes a co-operator for the service.

Mr. George L. McCurdy, one of the prominent marine insurance men on the lakes, realizing that the benefits to be derived afforded a big protection to his interests, has set aside \$250 in prizes as an incentive for vessel captains and mates to take the first course.

As a class the captains on the lakes are very intelligent, but their profession, like all others, has advanced and instead of having wooden vessels to handle, as they had a few years ago, they now have vessels of iron and steel, monster magnets in themselves, acting on the needle of their own compasses, hence the captains should be able to detect at

any time just how much his compass is out, allow the error, and proceed with his vessel in safety especially if he is liable to be enveloped in a fog, and is not able to pick up landmarks on shore.

Last year there was one of Mr. Wilson's pupils who took the course in order to be able to find his way about in Alaska in case he got lost.

It is interesting to note that this year there are several who are taking the course with the same intention.

The course will continue till April 30, every Tuesday and Friday evening, from 7:30 to 9:30 o'clock. There are three courses for pupils of different stages of advancement.

THE COAL MOVEMENT.

The bituminous coal movement during October from the five ports comprising the Cleveland customs district was 405,552 tons, divided as follows: Cleveland, 225,679; Ashtabula, 118,373; Lorain, 33,387; Fairport, 21,100; Conneaut, 7,013.

A QUICK TRIP.

The new steel tug William H. Brown, Capt. Jones, built by F. W. Wheeler & Co., at West Bay City, and now on the way to New Orleans, has made an excellent record thus far, steaming from Detroit to Buffalo in less than seventeen hours, and again from Montreal to Quebec, a distance of eighty miles, in nine hours.

She is a powerfully built boat, being on the same plan as the W. R. Wilmot, which passed down a few weeks since.

A LAKE ONTARIO WATERSPOUT.

A waterspout was seen on Lake Ontario, off Toronto, a few days ago. When first noticed it was about a mile out in the lake and traveling at the rate of probably ten miles an hour. When nearly opposite the eastern gap the spout broke, and in an instant disappeared, while the clouds which accompanied it continued on their course down the lake. It is said to be nearly thirty years since a waterspout was seen on Lake Ontario.

A NEW STEAMSHIP COMPANY.

The State Steamship Co. has been formed under the laws of the state of New Jersey, with a capital of \$7,000,000, and with Charles H. Cramp, president of the Cramp Ship Building Co., as its president. The new company has completed arrangements by which it acquires from the International Navigation Co. the five steamers, the Ohio, Pennsylvania, Indiana, Illinois and Conemaugh, and others will soon be added to the fleet. The steamers will be sent around the west coast as soon as possible, and ply regularly from San Francisco or Seattle to St. Michaels, catering to the Yukon river trade.

HOW COAL WAS PROBABLY FORMED.

To M. Fayol, an eminent French engineer, having in charge the coal mines at Commentry, is due the theory of the formation of coal, claimed to be based on such facts and experiments as receive the support of scientific men—the mines in question being partly worked in the open air, have rendered it easy to observe the relations of the different strata making up that region. It appearing at first that the pebbles constituting the pudding stones were formed of rocks whose place of origin was sometimes quite distant, and the coal being the result of vegetable debris laid down in horizontal layers, one above the other, the conclusion arrived at from these data assumed that a liquid must have been necessary to transport and arrange in this way such different elements—coal, therefore, not having been formed in the place where now found, but is a product of transportation. It is urged that the climate of the coal epoch being very moist, abundant floods carried away trees and whole forests and swept them into lake basins, the trees thus forming great rafts of logs; the heaviest materials—gravel, sand, clays—were deposited in the order of their density, the lighter vegetable matter floating longer and being deposited last. This, it is thought, explains why the layers of earth and coal are not parallel, and why all those layers, as has been observed in deltas, are inclined in the same direction and at different angles.

MADE OUT OF WHOLE CLOTH.

It is reported that one of the life-saving stations on the beach twenty miles below San Lucia, Fla., is to be abandoned, and on account of a ghost that walks there, and is not to be laid by any means at the command of the men.

The station is a state institution, and has been maintained there mostly by the people to aid shipwrecked mariners, as it is on a very dangerous part of the coast. Two years ago a vessel was wrecked near there, and only one passenger escaped, that being a very handsome girl of about eighteen.

Will Smith and Henry Johnson, both at the station, aided in her rescue, and both promptly fell in love with her. Last year she married Smith, and in consequence Johnson grew to be surly and morose, and seemed to think he had been slighted. Not long after that the young wife was missing one day, and a week afterward her body was found in the sound back of the station, drowned.

Johnson, after that, became very taciturn and moody, and the men seemed to think he was almost out of his mind, although no suspicion was attached to him. A month or so ago stories began to come up here of a ghost walking at the station, and shortly after that came the story of how Johnson had killed himself after confessing to the drowning of Mrs. Smith.

Capt. Dodd, who tells the story, says others had heard of this spirit wandering around, and he had seen what he thought was a ghost twice on the beach. It appeared to be the indistinct form of a woman floating through the air a few feet above the earth, clasping her hands and weeping. "I did not tell of it for several days, until I found out that others had seen it as well as myself. Sometimes it came up near the station, and twice I heard wild and unearthly screams at midnight." By a singular coincidence each time Johnson was outdoors. He came in then with blanched face and staring eyes, and, rushing to his bunk, pugged beneath the clothes and refused to speak to anyone.

ANOTHER AMERICAN FLEET.

The Yukon Co., of Seattle, Wash., executed a contract on November 10 with the Roach Ship Building Co., at Chester, Pa., for two 5,000-ton steamships to ply between Seattle, Wash., and St. Michael's, Alaska, to connect at the latter point with the fleet of 12 Yukon river steamers now being built by Moran Bros., at Seattle. The ships to be built by the Roaches will be the largest and most complete American steamships on the Pacific coast. They will be 418 feet in length and 27 feet deep, and will have a carrying capacity of 4,200 tons and 1,000 passengers. All of the passengers will have berth accommodations. The ships are designed to make a speed of 16 knots an hour, and it is claimed that they will be the fastest on the Pacific coast. They will cost \$1,000,000 and work on them is being pushed night and day to have them ready for the opening of navigation in the spring.

Andrew F. Burleigh, of Seattle, the president of the company, has signed a contract with Moran Bros., at Seattle, for a fleet of 12 large river steamers for the Yukon, to run from St. Michaels and Dawson City, in addition to two tow boats and 25 freight barges. The company will sell through tickets with first-class passenger accommodations entitling the passenger to carry a ton of freight through from Seattle to Dawson City, to be delivered at the latter point within 26 days.

The Society of Naval Architects and Marine Engineers held their annual meeting in New York this week, and Clement A. Griscom, of Philadelphia, was re-elected president. Commo. F. M. Bunce, U. S. N., was chosen to succeed Admiral Meade in the list of vice-presidents. T. W. Hyde and E. A. Stevens were elected vice-presidents. Those who were re-elected vice-presidents are Charles H. Cramp, Philip Hichborn, Charles H. Loring, William H. Webb, George W. Melville, George W. Quintard, Irving M. Scott and Frank L. Fernald. W. M. McFarland and C. H. Peabody were added to the council board. Francis T. Bowles was re-elected secretary and treasurer. The following papers were read: "Water-tight Bulkhead Doors," by William B. Cowles, of Cleveland, O.; "Regulations for Loading Vessels," by Lewis Nixon, of Elizabeth, N. J.; "Torpedo-Boat Design," by Assistant Naval Constructor Horatio G. Gilmor, U. S. N.; "An Experimental Study of the Influence of Surface on the Performance of Screw Propellers," by Prof. Wm. F. Durand, of Cornell University; "Progressive Speed Trials of the Boston Police-Boat Guardian," by Prof. Cecil H. Peabody, of the Massachusetts Institute of Technology, and "The Commerce of the Great Lakes," by Charles E. Wheeler, of Cleveland, O. Mr. Yarrow, the English torpedo boat builder, was present and participated in the discussions. The proceedings closed with dinner at Delmonico's on Friday evening.

H. C. BURRELL,

Marine Reporter.

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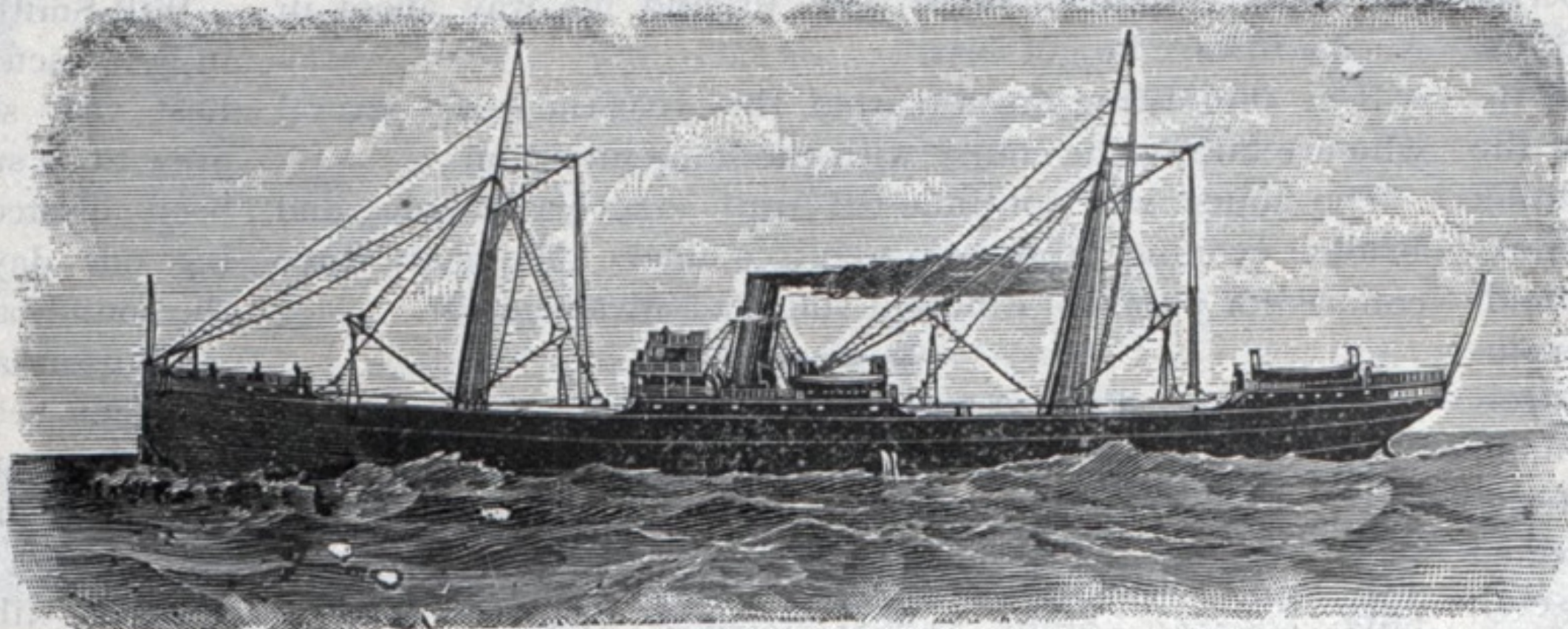
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CHICAGO, ILL.**A CANARD.**

A Duluth dispatch to the effect that Capt. Labourg, of the famine relief steamer City of Everett has made complaints of the manner in which he was treated by British custom officials of Calcutta, and the English citizens of that city in general, with reference to duties and other matters, has brought forth a vigorous denial from the Chamber of Commerce of this city in part as follows:

"We have no knowledge that annoyances were intentionally inflicted on the captain of the City of Everett, therefore it has formally extended to our people through official channels, the thanks of the British government for the kindly action of our citizens in forwarding this relief to British subjects.

"The Chamber of Commerce of San Francisco was the local responsible organization in connection with the charter of the City of Everett, therefore it became a duty to place this matter before the public. No duties whatever were charged on the cargo. Moreover, it was transported by the British government to the points in the interior free of charge."

British Consul-General Warburton places no credence in the dispatch, stating that there is no duty on the grain and food stuffs such as the Everett carried. Consul-General Hazleter writes from Calcutta telling of charges on the relief cargo and making no mention of any trouble or unpleasantness in the matter.

A TALE OF THE SEA.

Two American captains were recently relating their experiences on different voyages. One of them told the following story: "About 1 p. m. on March 2, my ship was proceeding under full sail when a cloud about the size of a man's hand was observed on the horizon. It came on, and as it neared the ship we discovered that it was composed of locusts. They settled on the sails, and you couldn't see a bit of canvas for them. When they flew away, there was not a stitch of canvas left on the yards." "Ah," said the other captain, "I can quite believe that, for at about 3:30 p. m. on

March 2 my vessel was proceeding under full sail when we observed a small cloud on the horizon. As it approached the ship we discovered that it was a cloud of locusts, and as they passed our vessel we saw that every man Jack of them had a pair of No. 1 canvas trousers on."

VISIBLE SUPPLY OF GRAIN

As compiled for The Marine Record, by George F. Stone, Secretary Chicago Board of Trade.

CITIES WHERE STORED.	WHEAT. Bushels.	CORN. Bushels.	OATS. Bushels.	RYE. Bushels.	BARLEY. Bushels.
Buffalo.....	1,965,000	2,121,000	693,000	197,000	1,170,000
Chicago.....	4,488,000	19,786,000	1,455,000	729,000	494,000
Detroit.....	360,000	151,000	7,000	43,000	4,000
Duluth and Superior	2,904,000	803,000	647,000	680,000	738,000
Milwaukee.....	242,000	344,000	51,000	32,000	151,000
Montreal.....	231,000	62,000	363,000	123,000	28,000
Oswego.....	21,000	129,000		8,000	137,000
Toledo.....	435,000	432,000	403,000	99,000	
Toronto.....	51,000		5,000		30,000
On Canal.....	423,000	396,000	282,000	235,000	594,000
On Lakes.....	1,757,000	1,240,000	1,784,000	382,000	648,000
On Mississippi.....					
Grand Total.....	31,973,000	43,439,000	14,285,000	3,797,000	4,324,000
Corresponding Date, 1896.....	61,008,000	18,196,000	12,759,000	2,708,000	6,250,000

While the stock of grain at lake ports only is here given, the total shows the figures for the entire country except the Pacific slope.

It is only recently that the British Admiralty has sanctioned the use of salt in the bluejacket's daily allowance of food. Hitherto if the English sailor felt the need of salt he had to purchase it, and it was entirely omitted from the list of condiments supplied to him by the state. The reason for this was that in the old days of wooden ships the sailor's diet consisted almost exclusively of salted meats, and under those circumstances salt on the table would have constituted an irritating superfluity, but in these modern times "salt horse" has become a thing of the past, and with rations composed of either fresh meat or canned food salt is not only a desirable seasoning, but a necessity, the absence of salt from food being extremely detrimental to the health.

NOTES.

The British ship Bacchus, 1,250 tons register, built at Birkenhead in 1867, has been sold to Russian buyers for £2,600. It is reported that the iron bark Craigwhinnie, 834 tons register, built at Liverpool in 1878, has been sold for a little over £2,700.

A Parliamentary return states that the number of British seamen employed in March, 1896, on steam and sailing vessels was 125,009, as against 127,567 on April 5, 1891. The number of foreign seamen was 27,446 as against 23,884 in 1891. The number of Lascars employed was 27,911 in 1896, as against 21,322 in 1891.

Charles Parsons, the inventor of the steam turbine which was fitted in the 100-foot torpedo boat Turbinia, giving her a speed of 33 knots an hour, is about to construct at Newcastle-on-Tyne a vessel of the torpedo boat destroyer type with turbine engines. It is stated that she will have a speed of 36 to 40 knots an hour.

The tonnage of the merchant marine of the United States at 30th June last was 4,769,020 gross, but of this the Atlantic and Gulf coasts claim 2,647,296 tons and the lakes 1,410,103. 6,599 steam vessels of 2,358,588 gross tons is the amount of steam tonnage on the register to 30th June, which is an increase of 51,000 tons over the previous year.

Orders were recently placed with Dean Bros.' Steam Pump Works, Indianapolis, for marine pumps for steamships now building by the Chicago Ship Building Co., Cleveland Ship Building Co., Globe Iron Works, Union Dry-Dock Co., and F. W. Wheeler & Co. The above orders include independent air pumps and condensers of 15,000 h. p.; ten ballast pumps 12 inches by 18 inches by 20 inches, aggregating in all 40 steam pumps.

The specification of a novelty, both in shape of a stockless anchor and the stowing of same, has just been published. The idea is that of a London mariner. The head of the anchor is fastened loosely to a shank by a crosspin, so that after the anchor has been dropped, the head being free to turn over, causes it to "bite." An oblique hawse hole is made in the ship, through which the cable works. When

the anchor is raised and stowed it is brought home to and fits against the bow of the vessel, thus forming a ram, which serves to clear away any obstruction in the ship's course. The outer edges of the flukes are beveled and sharpened so as to clear away sheet ice without injuring the stem of the vessel. One advantage claimed for the invention is that the anchor can let go instantaneously by slackening off the cable, while the labor of lifting the anchor inboard is dispensed with.

The Canadian government have concluded arrangements with the Beaver Line to carry the British and Canadian mails for the coming year. The ports of arrival and departure will be Liverpool and St. John, New Brunswick in winter, and Montreal in summer. The Gallia has been bought from the Cunard Co., and she will participate with the Lakes Winnipeg, Huron, Superior, and Ontario in a weekly service.

The balance in favor of the United States in its commerce with Great Britain was greater last year than at any previous time during the last fifteen years, and Consul-General Osborne says, probably than for any year prior to that period. In a report just sent by him from London to the State Department on the foreign trade of the United Kingdom in 1896, he puts this balance at \$370,000,000. The imports of the United Kingdom were \$125,596,730 more than in 1895, and from the United States alone the excess was \$98,992,430. The exports were valued at \$1,200,727,755, an excess of \$70,000,000 over the preceeding year. No conspicuous increase in the value of any article of export from the United States is noted, and the decreases are mainly in alkalies, wearing apparel, coal, cotton yarn, raw hides, metals, woollens and worsteds.

Among Atlantic Coast shipbuilders interest during the past week has been centered in contracts for the building of one or two twin-screw steamers for the New York & Cuba Mail Steamship Co., which recently secured from the Federal government the contract for carrying the mails between New York, the West Indies and Mexican ports. A New York dispatch says that the Cramps have secured the contract for two vessels of 400 feet length, 50 feet beam and 20 feet draft, but it is claimed at Chester, Pa., that only one

vessel will be built and that the Roach yard of that place will be given the contract. Charles Reeder & Son, of Baltimore, have closed a contract with the Port Deposit & Havre de Grace Steamboat Co. for a small excursion steamer, and the Charles Hillman Ship & Engine Building Co., of Philadelphia, has contracted to build for the J. B. King Transportation Co., of New York, a steel tug that will cost about \$100,000.

Capt. W. S. Schley, U. S. N., chairman, and Comdr. Geo. F. F. Wilde, U. S. N., and Capt. John Millis, U. S. Engineers, naval and military secretaries of the Light-House Board, left Washington this week and were the guests of Col. Heap, U. S. Engineer, and Comdr. Snow, U. S. N. Inspector of the third light-house district, at Tompkinsville. The purpose of their visit was for an official examination and test of the new acetylene gas buoy light with which Col. Heap has been experimenting and which promises to revolutionize light-house illumination. If their report be favorable Col. Heap's buoy light will take the place of those now in use.

It is related of an English army Major that having engaged a berth on an ocean steamer, he sat late the first night with some friends in the saloon. He suddenly returned to them after saying good night, and requested an interview with the purser. "There is a lady," he said excitedly, "in my cabin." "Nonsense" exclaimed the purser. "Here's the list; your companion is Capt. Higginson." "Nothing will induce me to go into that cabin again," said the Major. "Well, I'll go," rejoined the other. He returned with great celerity, and with a face as white as the Major's. "Upon my life, you are right. We'll put you somewhere else for the night, and see about it in the morning." With the earliest dawn they sought the steward and demanded an explanation. "It's all a mistake, gentlemen," he said. "It's Capt. Higginson all right; here's his luggage. We must have this explained," said the purser. "This portmanteau is unlocked; let us see what is in it." It contained a lady's wearing apparel. "By jingo!" cried the steward, "that's what comes of taking names as don't belong to us. She said she was Capt. Higginson, but she didn't say she was only in the Salvation Army."

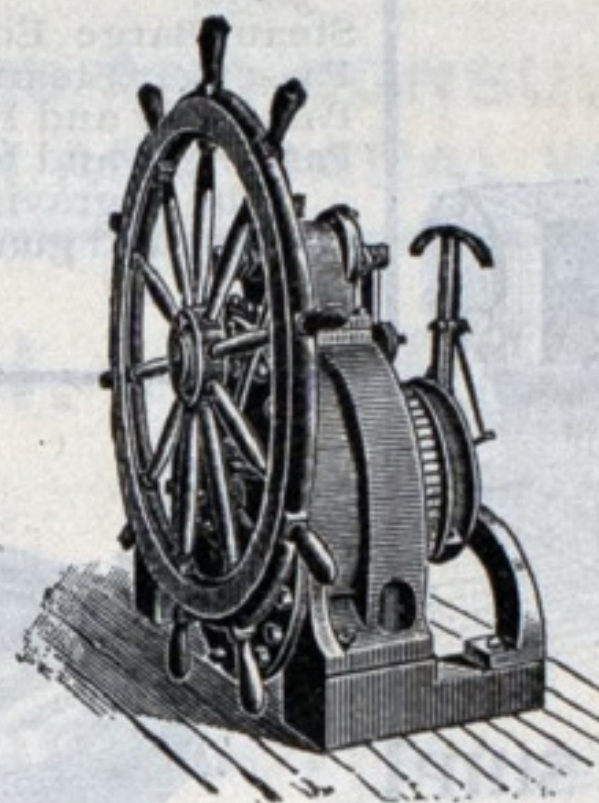
Receiver's Sale of Tugs.

The entire fleet of tugs of the Vessel Owner's Towing Company to be sold by order of the Circuit Court of Cook County, Illinois. Bids for all or any of these tugs will be received by the receiver until 9 a. m., November 22, 1897. All bids to be accompanied by a deposit of 10 per cent. of the amount of bid. The tugs can be seen by applying to the receiver.

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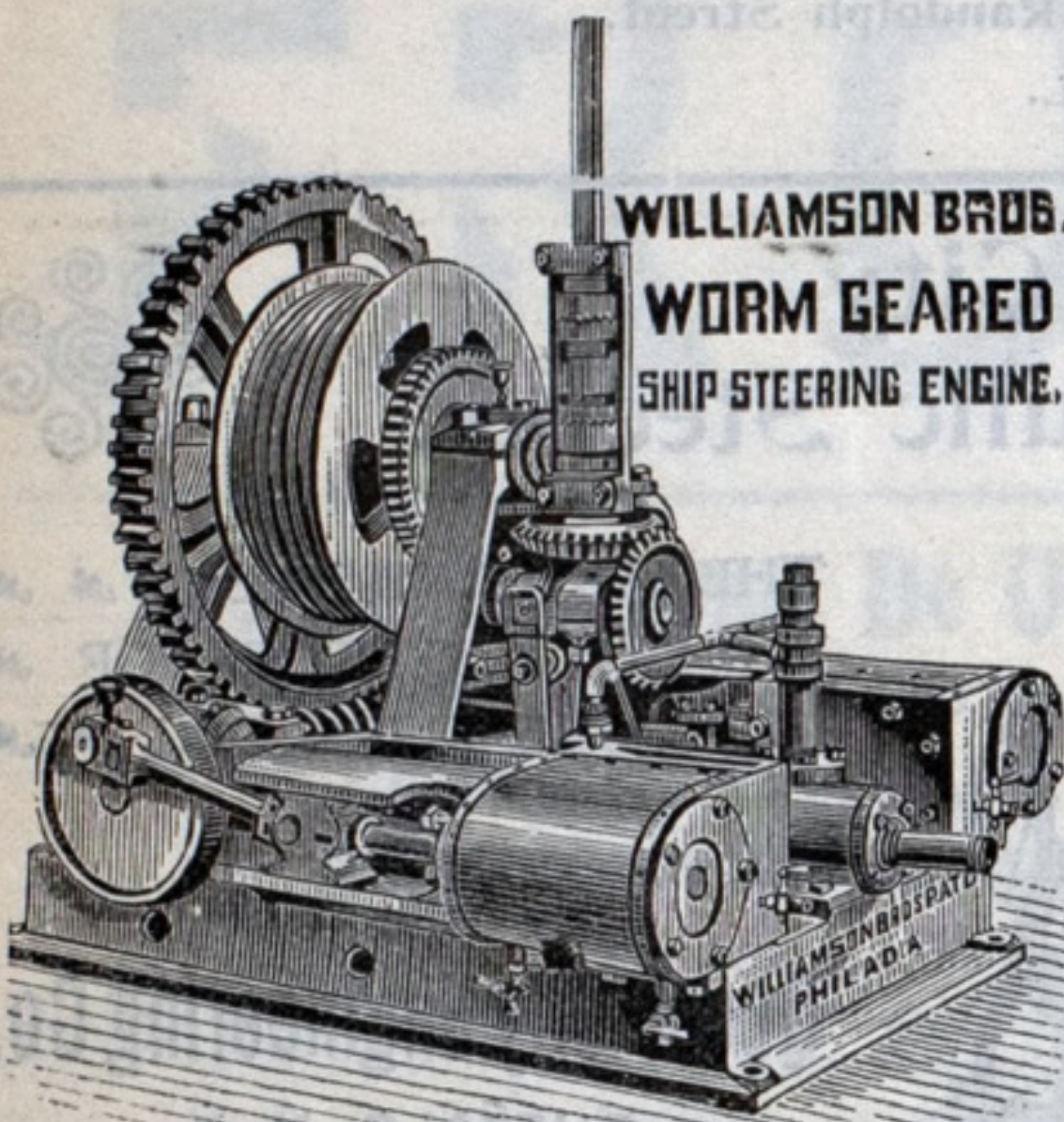
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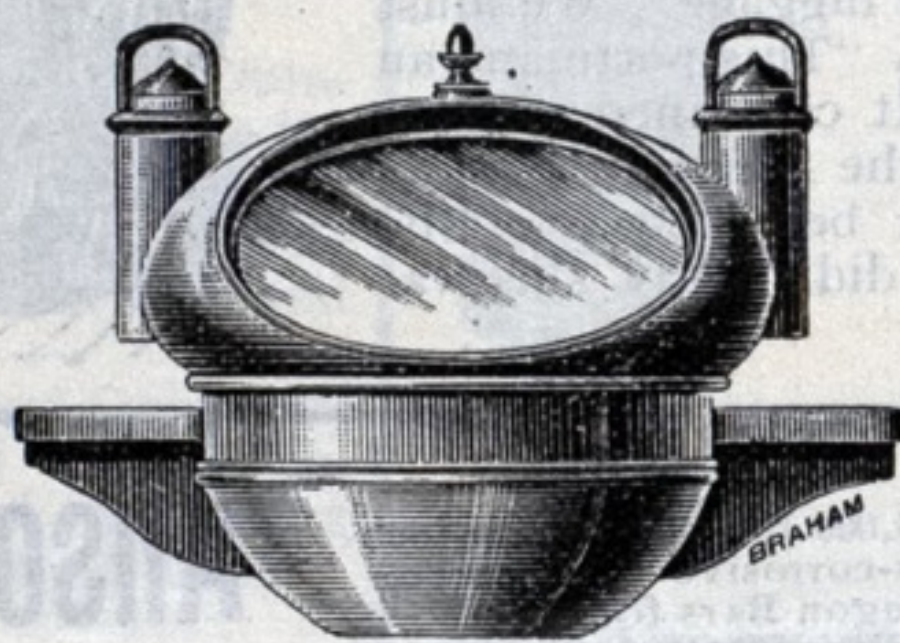
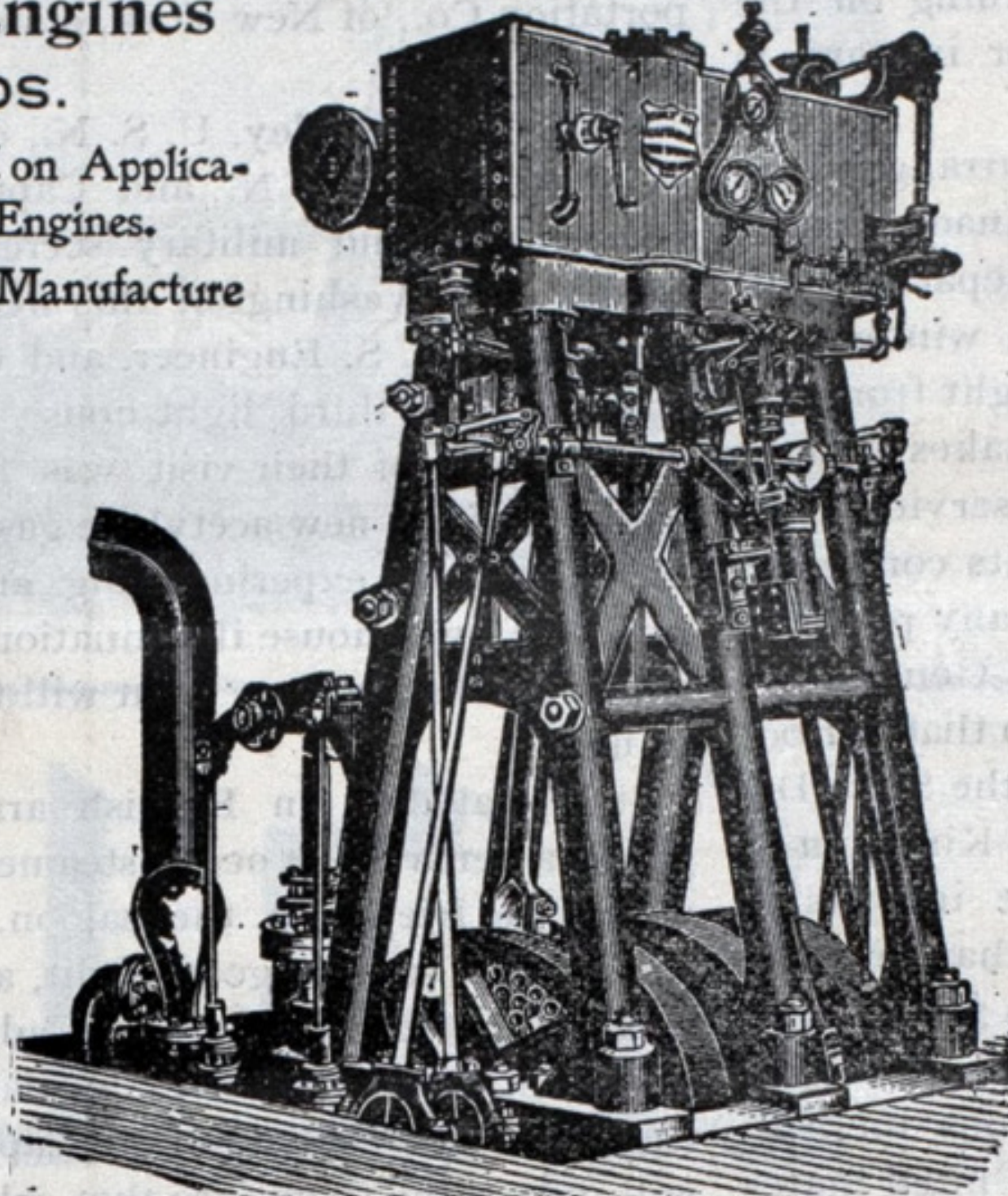
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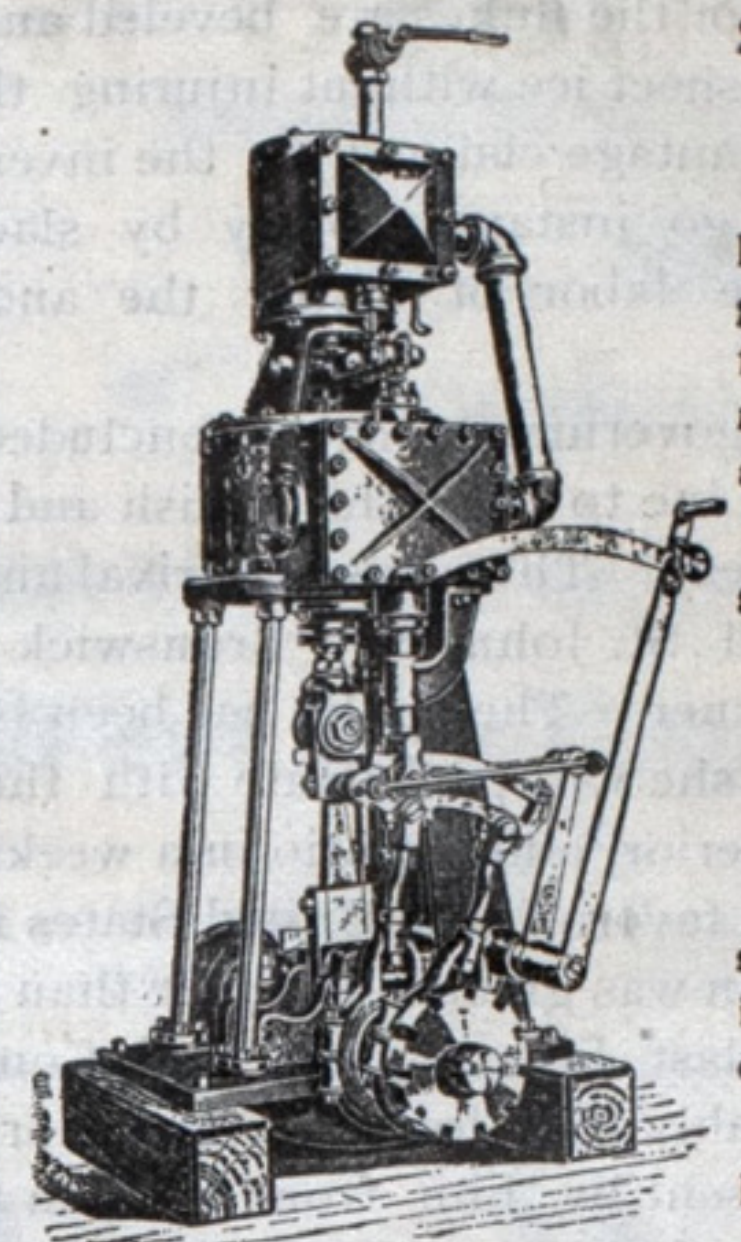
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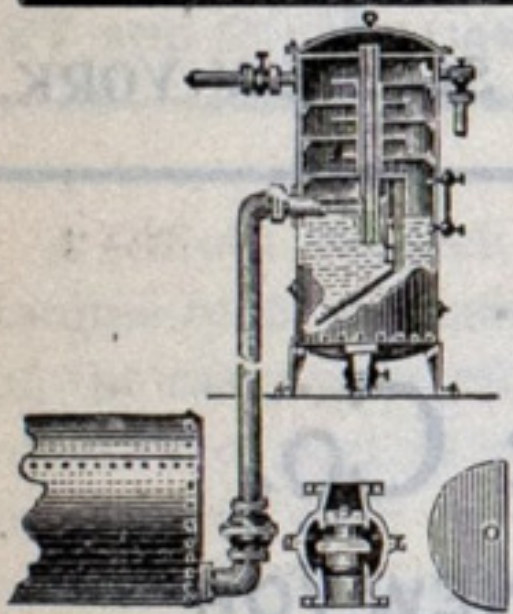
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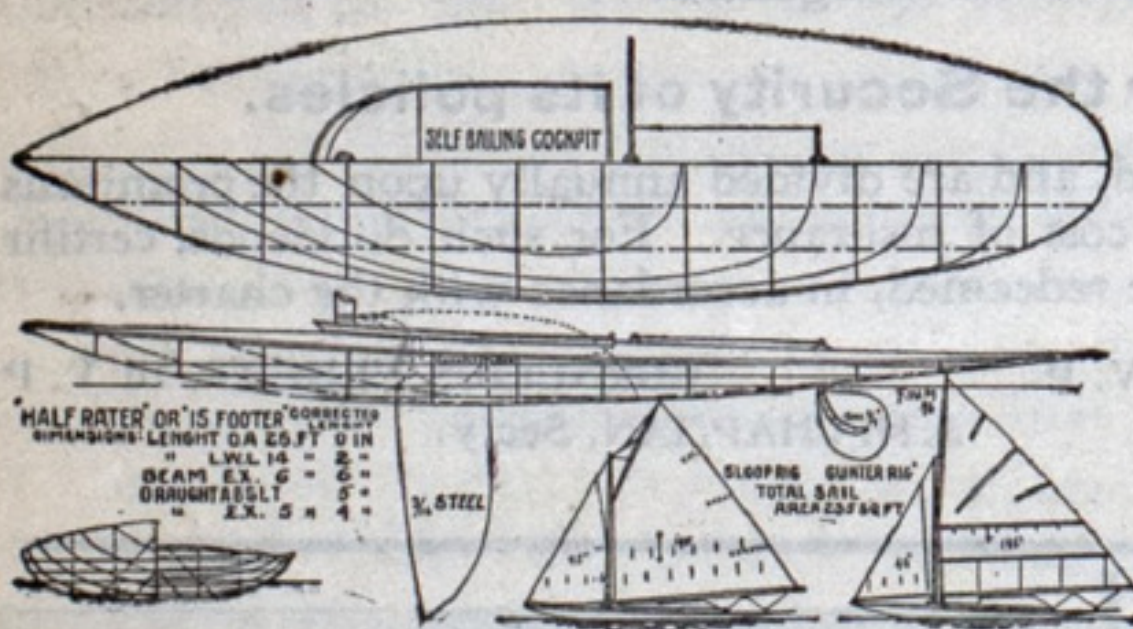
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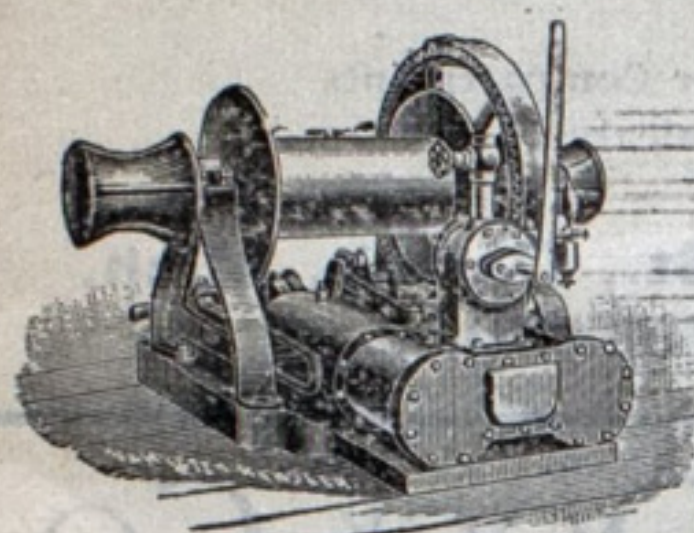
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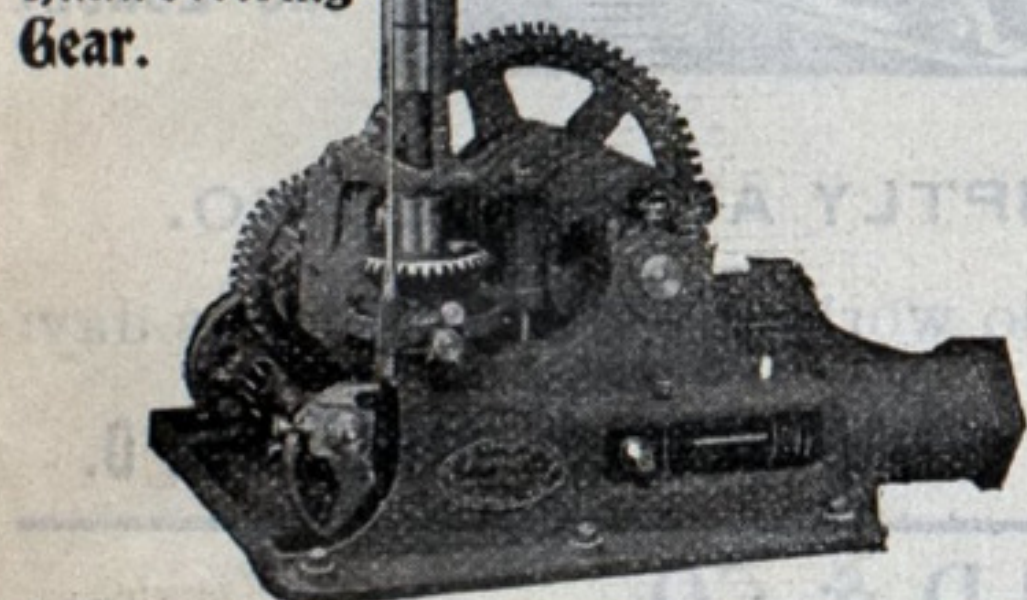
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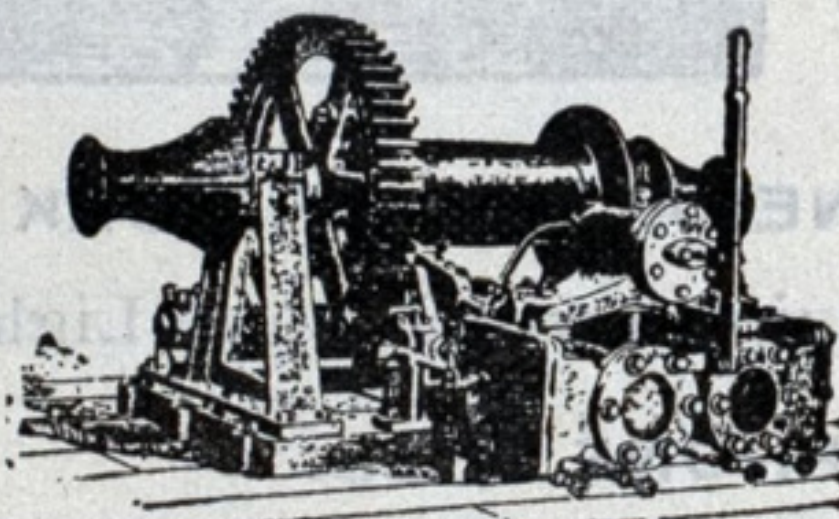
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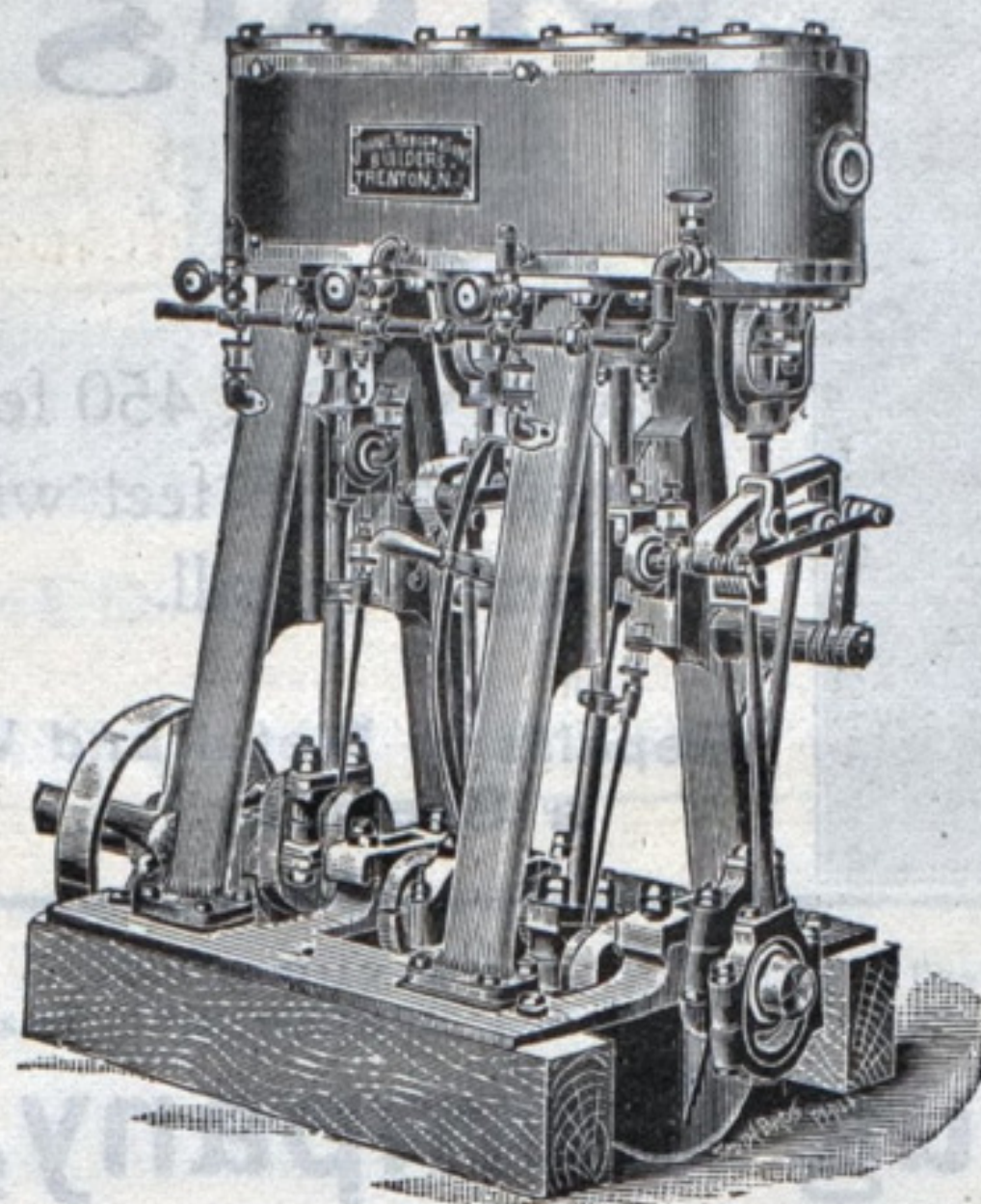
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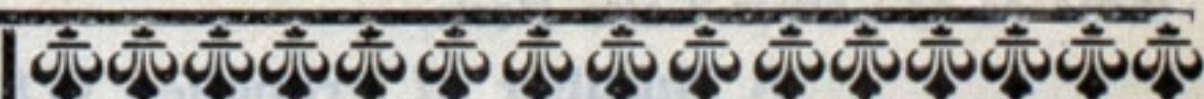
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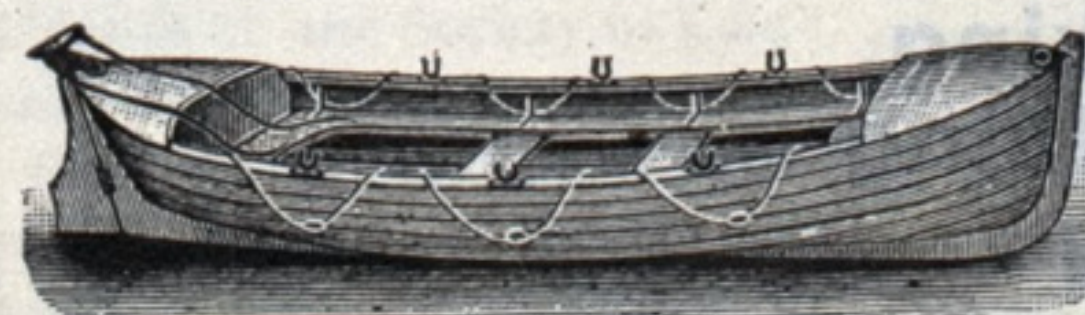
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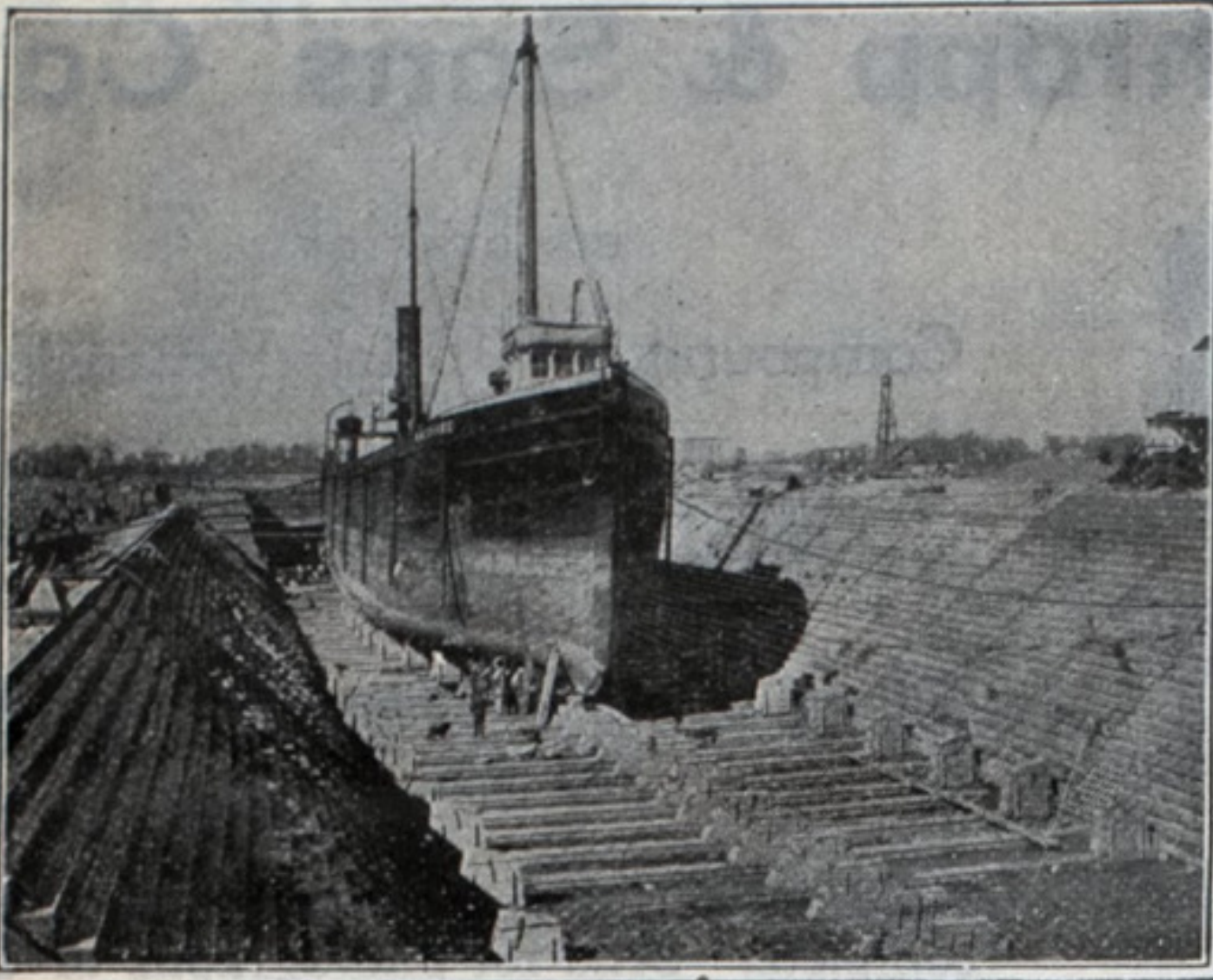


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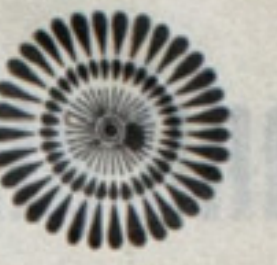
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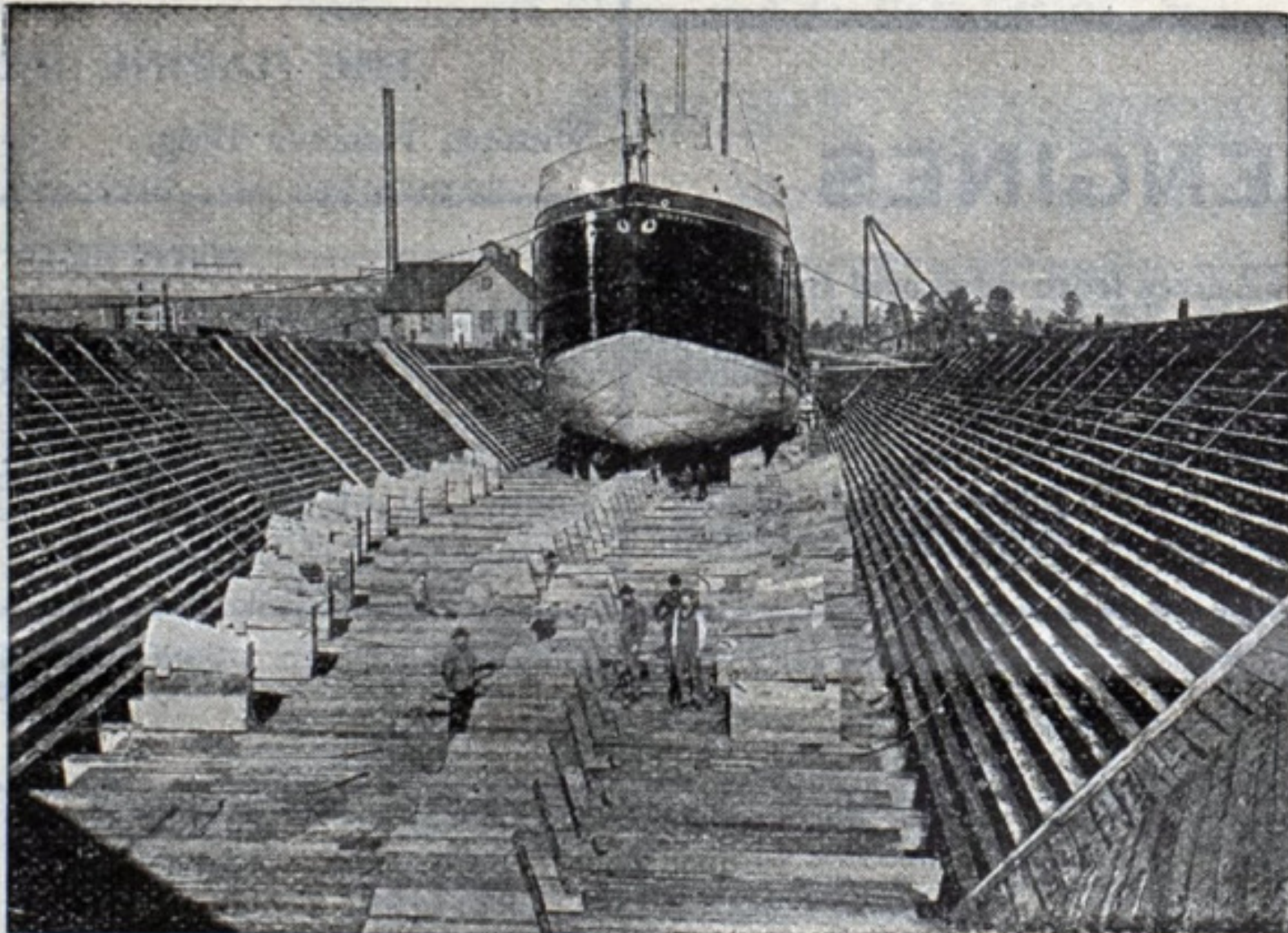
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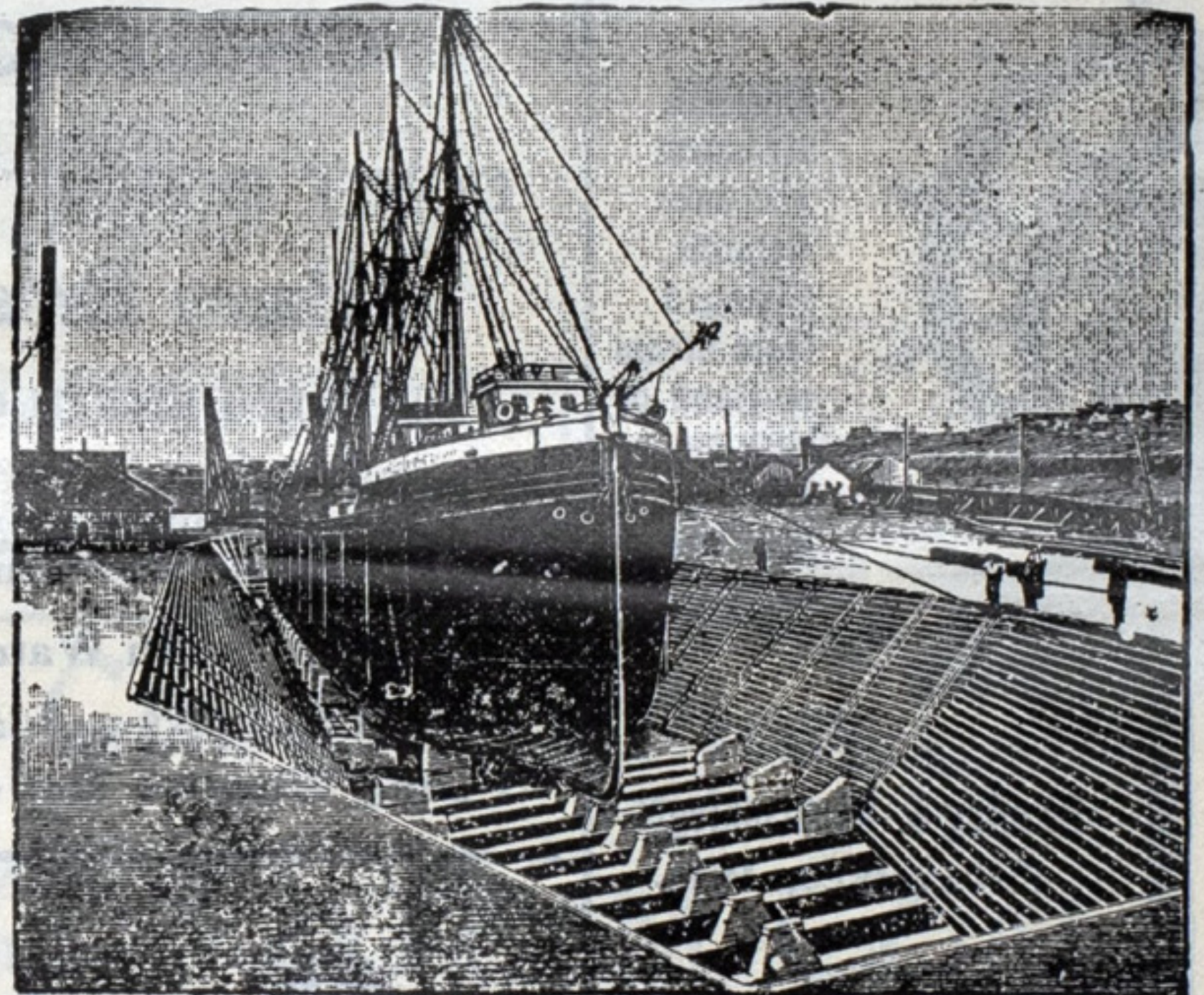
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